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TYPES OF FARMING IN CANADA

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ECONOMICS DIVISION
MARKETING SERVICE

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BRITISH COLUMBIA

1. Queen Charlotte Is.: dairy, poultry, potatoes.
2. Skeena River: pioneer, mixed.
3. Bella Coola: dairy, fruits.
4. Courtenay, V.I.: dairy, poultry, mixed.
5. Nanaimo, V.I.: dairy, poultry, mixed.
6. Duncan, V.I.: dairy, poultry, potatoes, fruits.
7. Saltspring Is.: poultry, dairy, sheep, s. fruits.
8. Saanich, V.I.: dairy, poultry, orchard, market garden, flower seeds, small fruits.
9. Lower Fraser Valley: dairy, poultry, potatoes, small fruits.
10. Howe Sound: poultry, dairy, potatoes.
11. Sechelt: poultry, dairy, potatoes.
12. Haselton: mixed, cattle, poultry.
13. Smithers: mixed, cattle, poultry.
14. Burns Lake: mixed, cattle.
15. Fort Fraser: mixed, cattle.
16. Vanderhoof: pioneer.
17. Prince George: pioneer.
18. Chilcotin River North: range cattle.
19. Cariboo: range cattle, sheep.
20. Chilcotin South, Lillooet, Bridge: range cattle, sheep.
21. North Thompson River: cattle, sheep, poultry, potatoes.
22. Nicola, Kamloops: range cattle, sheep, market garden, orchard.
23. Salmon Arm: orchards, poultry, dairy.
24. Spillumcheen: cattle, wheat, orchards, market garden.
25. Okanagan Valley: orchard fruits, small fruits.
26. Kettle River: dairy, fruit.
27. Similkameen: fruit, cattle, sheep.
28. Columbia River N.: pioneer, cattle, hogs, fruit.
29. Nakusp, Burton, Needles: fruit.
30. Castlegar: cattle.
31. Kootenay: wheat.
32. Creston: fruit.
33. Kaslo: cattle.
34. Windermere: cattle, poultry.
35. Cranbrook: cattle, hogs, poultry.
36. Fernie: cattle, hogs, mixed.
37. McBride: pioneer.
38. Peace River, Fort St. John: wheat, feed grains, hogs.
39. Peace River, Pouce Coupé: wheat, feed grains, hogs.

ALBERTA

40. Peace River, southwest: wheat, feed grains, cattle, hogs.
41. Peace River, northwest: pioneer.
42. Peace River, north: wheat, cattle, hogs.
43. Peace River, north central: wheat, hogs.
44. Spirit River, Fairview: wheat.
45. Grande Prairie, Webster: wheat, hogs.
46. Peace River, Culp: wheat, feed grains, hogs.
47. Peace River, eastern: pioneer.
48. Peace River, Municipality 26d: wheat, hogs.
49. Faust: cattle, hogs.
50. Northern and n.w. pioneer fringe: pioneer.
51. Edmonton: wheat, cattle, hogs, poultry.
52. St. Vincent: wheat, cattle, hogs.
53. Red Deer, Edmonton, Vermilion: wheat, cattle, hogs.
54. Wainwright: wheat, cattle.
55. Alliance: wheat, cattle.
56. Carbon, Norquay, Stauffer: wheat, hogs.
57. Calgary, Carstairs: wheat, cattle, hogs.
58. Sounding Creek, Neutral Hills, Lomond: wheat.
59. Bulyea: wheat, cattle, hogs.
60. Brooks, Vauxhall, Irrigation area: wheat, hogs, poultry.
61. Southern foothills: range cattle.
62. Claresholm: wheat, hogs.
63. Sunnysouth, Kings: wheat, sheep.
64. Pincher Creek: wheat, cattle.
65. Taber, Raymond irrigation area: wheat, sugar beets, alfalfa, hogs, poultry.
66. Medicine Hat, McNally: wheat, cattle.
67. McLeod: wheat, cattle, hogs.
68. Cardston west: cattle, sheep.
69. Raymond south: wheat, cattle, hogs.
70. Warner south: wheat, cattle.
71. Skiff: wheat, sheep.

SASKATCHEWAN

72. Northern Pioneer Fringe: pioneer.
73. Spruce Lake: wheat, cattle.
74. Prince Albert, North Battleford: wheat, cattle hogs, feed grains.
75. Saskatoon: wheat, cattle, hogs, feed grains.
76. Wadena: wheat, cattle, hogs, poultry, feed grains.
77. Central Plains area: wheat.
78. Chaplin: wheat, rye.
79. Regina, Bethune: wheat, dairy cattle.
80. Municipalities 140 and 170: wheat, cattle, sheep.
81. Maple Creek, Hatton: wheat, cattle.
82. Municipalities 80, 81 and 82: range cattle.
83. Consul: wheat, cattle.
84. Municipalities 14-15-16: wheat, cattle.
85. Central Eastern Saskatchewan: wheat, dairy and beef cattle.
86. Qu'Appelle Valley north: wheat, dairy and beef cattle, poultry, hogs.
87. South-eastern Saskatchewan: wheat, cattle, hogs.

MANITOBA

88. Dauphin: wheat, cattle, poultry, feed grains.
89. Ste. Rose du Lac: beef cattle.
90. Inter-Lake north: pioneer.
91. Central Western Manitoba: wheat, cattle, feed grains.
92. Inter-Lake Centre and Western: dairy.
93. Carberry Plains: wheat, cattle.
94. S.W. Manitoba: wheat, beef and dairy cattle.
95. Glenboro Plains: wheat, cattle, hogs.
96. Carman: wheat, cattle, hogs, poultry.
97. Winnipeg, Selkirk, Gimli: dairy, hogs, poultry, potatoes, barley.
98. Whitemouth: dairy, poultry, potatoes.
99. Red River West: wheat.
100. South-eastern Manitoba: pioneer.
101. Arnaud: wheat, dairy, hogs.
102. Marchand: dairy, poultry, hogs, potatoes.

ONTARIO

103. Rainy River: pioneer, cattle, sheep.
104. Fort William-Port Arthur: pioneer, dairy, poultry, potatoes.
105. Cochrane: pioneer, cattle.
106. New Liskeard: pioneer, cattle, poultry, sheep, potatoes.
107. Sault Ste. Marie: dairy, cattle, poultry, potatoes.
108. Sudbury: dairy, poultry, potatoes, pioneer.
109. Manitoulin Island: beef cattle, sheep.
110. Bruce Peninsula: beef cattle, sheep.
111. Northern Bruce & Grey: beef cattle, sheep, hogs.
112. Dufferin-Simcoe: beef, cattle, hogs, orchard, potatoes, sheep, wheat.
113. Lake Huron counties: beef cattle and dairy, poultry, hogs.
114. Waterloo: dairy, poultry, hogs, turnips, potatoes.
115. Northern parts Halton, Peel, York: dairy, potatoes, hogs, poultry, clover seed.
116. Niagara Peninsula: orchards, vegetables.
117. Oxford: dairy, poultry.
118. Essex: market garden, tobacco, corn, wheat, sugar beets, poultry, hogs.
119. Kent: sugar beets, corn, tobacco, wheat, poultry, hogs.
120. Elgin, Norfolk, Haldimand: canning crops, tobacco, orchard, dairy, hogs.
121. Hamilton, Toronto, Kingston, Lake Shore: orchards, vegetables, dairy, poultry.
122. Peterboro: dairy and beef, sheep.
123. Durham, Northumberland North, Hastings: dairy, poultry, hogs, sheep.
124. Prince Edward: canning crops, orchard, dairy.
125. Renfrew, Lanark: dairy and beef, sheep.
126. Eastern Ontario: dairy, hogs, poultry.
127. Ottawa: dairy, market garden, potatoes, poultry.

QUEBEC

128. Abitibi west: pioneer.
129. Kings: dairy, hogs, pioneer.
130. Benneterre: pioneer.
131. Ville Marie: dairy, hogs, sheep.
132. Latulipe: pioneer.
133. Pontiac North: pioneer.
134. Pontiac, Hull, Papineau, Labelle: dairy, sheep.
135. Central Quebec Pioneer Fringe: pioneer.
136. North Shore Ottawa River, Western Shore Upper St. Lawrence River: dairy, hogs, poultry, potatoes.
137. L'Assomption: dairy, hogs, tobacco.
138. Montreal: dairy, market garden, poultry, potatoes, hogs.
139. Huntingdon, United States Boundary: dairy, orchards.
140. Rouville, St. Jean, Iberville: orchards, market garden, poultry, dairy.
141. Central Eastern Townships: dairy, poultry, potatoes, hogs.
142. North-western Shore St. Lawrence River: dairy, sheep, potatoes.
143. Wolfe, Athabaska: dairy, sheep, poultry, potatoes.
144. Central Lower St. Lawrence counties: dairy, sheep, potatoes.
145. Frontenac, Temiscouata: dairy, sheep.
146. Central South Shore St. Lawrence River: dairy, poultry, hogs, potatoes.
147. Lake St. John: dairy, sheep, hogs, potatoes, pioneer.
148. Lower St. Lawrence, South Shore: dairy, sheep, hogs, potatoes.
149. Témiscouata East: pioneer, dairy, sheep, potatoes.
150. Bonaventure East: dairy, sheep, potatoes, poultry, pioneer.

PRINCE EDWARD ISLAND

167 Kings, Prince, Queens: dairy, sheep, hogs, poultry, potatoes.

NEW BRUNSWICK

151. Restigouche west: pioneer.
152. Restigouche n.e.: dairy, potatoes, pioneer.
153. Madawaska: dairy, sheep, potatoes.
154. Carleton, Victoria: potatoes, dairy.
155. South-west N.B.: dairy, poultry, pioneer.
156. Fredericton: dairy, potatoes, poultry, orchards.
157. Northumberland: dairy, potatoes, sheep, part-time.
158. Moncton: dairy, potatoes, sheep.
159. Kings, Albert: dairy, part-time.
160. Saint John: dairy, potatoes, poultry.

NOVA SCOTIA

161. Annapolis Valley: orchards.
162. Cumberl d: dairy, potatoes, sheep.
163. Truro: dairy
164. Pictou: dairy
165. Inverness: dairy, potatoes, sheep, hogs.
166. Antigonish dairy, poultry, part-time.

TYPES OF FARMING IN CANADA 1931

BRITISH
COLUMBIA

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TYPES OF FARMING IN CANADA

INTRODUCTION

Canada produces a wide variety of agricultural products and these are produced on farms which vary greatly in their location, size and general organization. The different regions of production are said to represent type-of-farming areas. This study is an attempt to segregate as nearly as possible the major type-of-farming areas of Canada and to outline the borders of such areas. The object of the study is to determine the location of the main producing areas of the major crop and live stock products and to study the relationship of these various enterprises to each other in the individual type-of-farming areas.

The results of the study are presented in four divisions. Firstly, the factors which affect types of farming and have been largely responsible for the wide variation in farming practices in Canada are discussed. Secondly, the types of farming in the individual provinces are enumerated and discussed as well as a brief review of the development of agriculture in each province, with some reference to the changes which have taken place since early settlement. Thirdly, the individual crops and classes of live stock are discussed to provide a summary of the main producing areas for the Dominion as a whole as they were in 1931. Some indication of the changes which have taken place is also given. Fourthly, the methods of procedure in determining the borders of the types-of-farming areas are presented as well as supplementary tables and maps concerning types of farming.

The preparation of the study was greatly facilitated by both the advice and assistance rendered by S. C. Hudson and J. N. Lewis of the Economics Division. It is hoped that the material published in this report will provide a basis for further reasearch in types of farming in Canada.

TYPES OF FARMING IN CANADA

In a country so large as Canada, it is to be expected that there would be a wide variation in the types of farming carried on in the different sections of the Dominion. The basic factors which influence the type of farming in an area are climate and soil and topography, and Canada has a wide variety of these factors. Not only do the various combinations of soil and climate lead to differences in types of farming, but the location of the area in relation to transportation and market facilities may also be a limiting factor in the production of certain commodities. Generally speaking, the more intensive types of farming, usually associated with perishable products, are carried on close to the ultimate market, while the more extensive types, such as ranching and cash grain production, are located at a greater distance from the market.

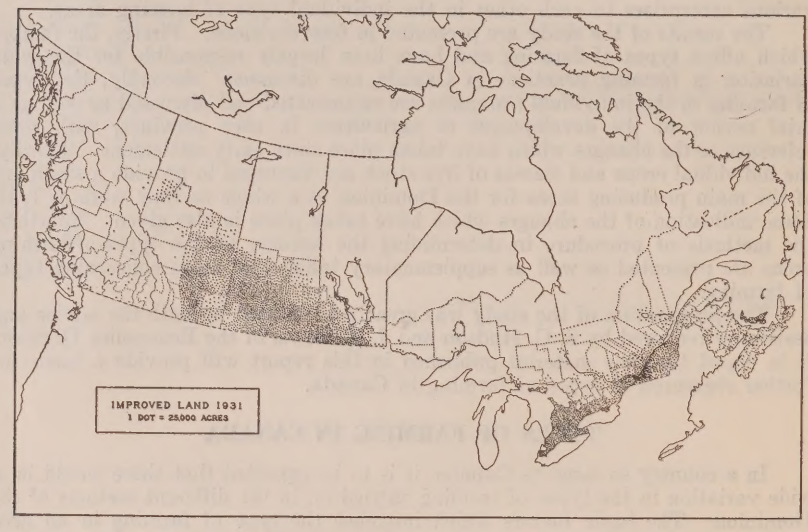
Before discussing the approximate location of the various types of farming areas of the Dominion, it may be well to discuss in a general way the climatic zones of the country, as well as to present a broad picture of the soils of the Dominion and the more pronounced topographical features.

Climate*

The climate of a country influences the type of farming carried on, chiefly by the length of the growing season or frost-free period and by the intensity of heat and cold during the summer and winter seasons. The amount and distribution of precipitation is also an important limiting factor in the types of crops or classes of live stock which will be adaptable to any area.

* Condensed from Canada Year Book, 1929, article by Sir Frederic Stupart. Page 42.

The climate of British Columbia, on the western coast of Canada, is influenced by the Pacific ocean on the west and the mountain ranges of the interior and eastern part of the province. The climate along the extreme western coast and on Vancouver island is of the marine type, with a comparatively long growing season and high precipitation. Such a climate is particularly adapted to the production of small fruits and market garden products in areas close to the city markets, and to dairying in the more distant areas. The plateaux of interior British Columbia experience a much drier climate than that of the coast region. In the southern interior valleys, where irrigation has been introduced, an intensive fruit-growing area has been developed. The more northerly agricultural areas of this part of British Columbia, where the winters are more severe, are better suited to cattle and sheep ranching.



The three Prairie Provinces, cut off on the west by the mountain ranges, and distant from any large bodies of water, have a climate that is continental in type. The variations in temperature from the winter to the summer are extreme. Although the climate of all three provinces has the same general characteristics, the winters of Alberta are usually not so severe as those of Saskatchewan and Manitoba because of the influence of Chinook winds. These warm winds generally come from the southwest and often cause a very rapid rise in temperature in the area affected. The length of the growing season in these provinces varies from north to south, but this factor is offset to some extent by the longer days of the northern areas. The frost-free period in Saskatchewan reaches a maximum of 140 days in the southwest and is as little as 100 days at the northern fringe of settlement. The chief limiting factor, in the areas where the season is sufficiently long, is rainfall. The annual average rainfall is from 11 to 20 inches with about 60 per cent occurring during the growing period. Rainfall is generally higher in the eastern and more northerly areas. This fact largely accounts for the more diversified type of agriculture found in Manitoba and in the northern parts of Saskatchewan and Alberta.

The vast area of the province of Ontario leads to a wide variation in climate within the province. However, topographical features limit the agricultural areas largely to the southeastern part of the province. At the same time, some

agricultural development has taken place in the more northerly sections of the province, in areas where soil and topography are suitable. The climate in these areas is severe with long cold winters and a relatively short growing season.

The climate of the more southerly part of Ontario is tempered to a large extent by the proximity of the Great Lakes. The winters are less severe than in the Prairie Provinces and the summers generally not so warm. Rainfall is more adequate and only in very exceptional years it is insufficient for the satisfactory production of grain and hay crops. In the most favoured areas, such as the Niagara peninsula, fruit growing is practised without serious loss from extreme climatic conditions.

The agricultural area of Quebec is also largely confined to the more southerly and easterly regions bordering the Ottawa and St. Lawrence rivers. The climate of this area is similar to the adjoining areas of Ontario, although slightly more extreme because of the lesser influence of the Great Lakes. The spring generally opens in April with the first fall frosts coming in September. As in Ontario, so too in Quebec, there is a substantial agricultural development in the north, particularly around lake St. John. Here the winters are more severe and the growing season shorter.

The climate of the Maritime Provinces is not so mild as might be expected for an area so close to the water. The cold Labrador current of the north Atlantic and the cold winds which sweep down from the interior of northern Quebec, cause a more extreme winter and a late spring season. The fall, however, is generally more open than in central and western Canada. Annual precipitation averages from 40 to 45 inches, with heavy winter snow-fall in some areas.

Soils*

British Columbia.—The most important agricultural areas of British Columbia are the lower Fraser valley on the west coast and the Okanagan valley in the interior. The lower Fraser valley is divided into uplands and lowlands. The older upland soils are reddish-brown to brownish-yellow with iron concretions, low organic content and acid reaction. The soils with open subsoils are most subject to midsummer drought. The more drought-resistant upland soils are being developed gradually for the production of fruits, vegetables and some mixed farming enterprises.

The lowland soils are recent delta deposits of the Fraser. The soils are young, of fine texture and altogether the richest soils of the lower Fraser valley. The lowlands are well developed for dairying and grain growing. The more decomposed peat soils in this area are used for vegetable production and pasture lands.

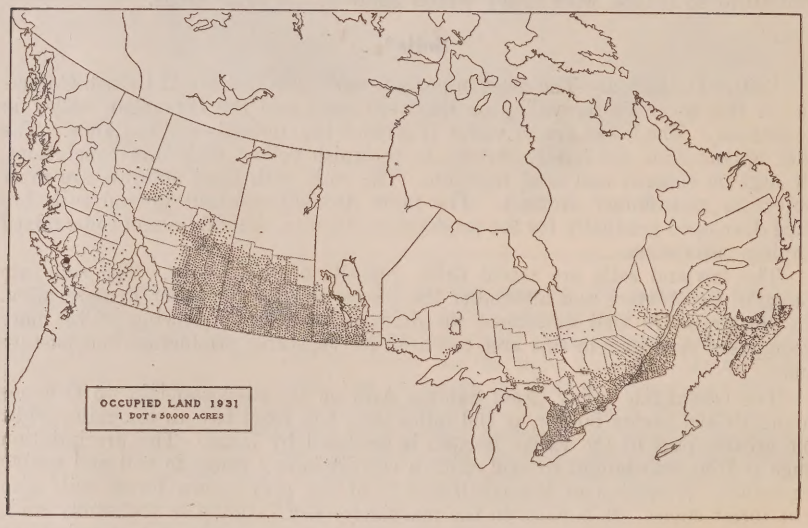
The Okanagan valley, from Salmon Arm on the Shuswap lake to Osoyoos on the United States border, is 160 miles long and from two to ten miles wide. The greater part of the valley bottom is occupied by lakes. The precipitation range is from sub-humid to arid, with a corresponding range in soil and native vegetation. A section of the north end is of the grey-brown forest soil, with light forest cover. It is close to the margin for dry farming in the sandy soils. Southward, the forest area gives way to black earth, with grain growing the main activity on the heavier soils. The black earth in turn fades into a zone of dark brown soil. Here the land is irrigated for orchard fruit production. At the southern end of the valley, the soils are light brown and stone fruit production is important in the irrigated areas. The soils are of glacial origin with considerable variation in topsoils and subsoils. The texture range is from loamy sand to heavy clay. The topsoils are neutral to weakly acid in the zone of the grey-brown forest soils, and weakly alkaline in the more arid regions.

* Based on material kindly submitted by soil scientists in the individual provinces.

Prairie Provinces.—The soils of the Prairie Provinces may be divided into two main regions, those of the grassland region and those of the forest region. Most of the agriculturally developed soils lie within the grassland region, which extends northward from the United States border to a line drawn diagonally from the southeast corner of Manitoba to the point where the fifty-fifth parallel cuts the Alberta–British Columbia boundary. North of this line, in the forest region, climatic conditions are generally too rigorous for agriculture, although there are some exceptions in the southern part of the region and in the Peace River area of Alberta.

The grassland region is subdivided into four zones, the light-brown steppe; brown to dark-brown steppe; dark-brown steppe—black earth transition, and the black earth soil zone. The light-brown steppe soils of the southwest are characterized by a light-brown to greyish-brown topsoil over a column-like greyish-brown subsoil. The carbonate accumulation in these soils is higher in the profile than in the dark brown soil belt. The native vegetation in this zone is of the short grass type. The area is utilized chiefly for cattle and sheep ranching, with some wheat production in years of favourable rainfall.

The brown soils of the plains are treeless in the well-drained areas, and are characterized by a thin dark-brown to brown friable, finely granular to structureless topsoil, with a subsoil characterized by a narrow column-like structure over a lime carbonate accumulation layer. This area stretches diagonally across Saskatchewan and into central Alberta. It is utilized chiefly for the production of high-protein wheat.



The dark-brown steppe—black earth transition is a sub-division of the black earth belt, occurring in the southwestern portion of Manitoba. This belt is generally drier than the true black earth belt and evidence of this is seen in the occurrence of dark brown soils where the topography is rolling. This belt is chiefly devoted to grain production. The black-earth soil belt extends from southern Manitoba to Edmonton in Alberta. In the northern and western portion, islands of aspen grove occupy the low areas and give a park-like aspect to a considerable portion of this belt. The vegetation of the black-earth belt is tall prairie grassland, especially in the southern portion, while in the northern

portions the aspen groves appear. The land of this belt is used for grain production, giving somewhat higher yields, but of lower protein content, than in the brown to dark-brown steppe zone. Live stock production is becoming more common in the northern portion.

The forest region, to the north of the grassland region is also classified into four zones on a soil basis:—the black-earth—grey-wooded transition; the grey-wooded; the forest tundra transition and the tundra zone. The black-earth—grey-wooded transition forms a narrow belt north of the black-earth soil zone and some general farming is carried on in this area. The grey-wooded soils cover a wide belt of northern Manitoba, Saskatchewan and Alberta. The growing season in this area is short and soil fertility is not high. Some general farming is carried on in a pioneer way, but the area is chiefly forest. The forest tundra and tundra zones are not used agriculturally.

Ontario.—A high percentage of the land area of the province of Ontario is unsuitable for agricultural purposes. The large tract of shallow soil over igneous rock, extending from Kingston and Brockville to the Manitoba border is a forest area containing only from five to ten per cent agricultural land. Another large area, known as the coastal plain region, extending from the fiftieth parallel to the Manitoba boundary, between the precambrian shield and Hudson and James bays, is composed chiefly of muskeg and marine clap of no agricultural value.

A large potentially agricultural area is the clay belt, which lies between the height of land and the fiftieth parallel, and also includes a smaller tract north of lake Temiskaming. Some settlement has taken place in this large area where the soils have been formed by water-laid deposits of ancient lakes and some ground moraine. The soils have been weathered to only a shallow depth and have good productive possibilities. The climate of the area is more of a limiting factor than is the soil.

Southern and southwestern Ontario is by far the most important part of the province from an agricultural standpoint. The soils of this area have been formed mostly by glacial drift, or outwash from it, and by lake sediments in the eastern portion. This soil-forming material has a large proportion of limestone, which has been sufficient to keep most of the soils neutral in reaction. There are several relatively large tracts of sandy soils which have been formed as deltas and outwash deposits near the mouths of large streams which existed during the recession of the last great ice sheet. The most notable of these is the broad tract in Norfolk, east Elgin, south Oxford and west Brant counties, which is now being extensively used for tobacco production. The soils in part of the lake plain region of Essex, Kent and Lambton counties have high organic-matter content and are well adapted to the growing of such cash crops as sugar beets, corn and tobacco. The narrow strip of land surrounding the western end of lake Ontario is subject to a long growing season and is chiefly devoted to fruit and vegetable production.

Quebec.—Across the northern part of Quebec is a wide belt of heavily leached soils. These soils are distinctly acid and as a rule light in texture and of low fertility. In the southern and southeastern part of the province, is another large area of somewhat similarly leached soils. The south-central and southwestern portion of the province has a grey-brown forest soil. The leaching in this area is less pronounced, the soils less acid and the grey leached layer very feebly developed or absent and the accumulation of organic-matter in the surface is not so great. These soils, as a rule, are more fertile than those of the first two general areas and are utilized mainly for hay and pasture. There are two sub-divisions of this type, one having a deep open subsoil and more uniform distribution of organic-matter, is especially adapted to fruit growing; the other type has a more compact subsoil, with poor drainage and is, therefore, unsuitable for deep rooted crops.

The clay and loam soils of the Montreal area are the most productive in the province. In some cases, the clay is covered by beach sand from former lakes, and while less fertile, is suitable for tobacco production. A large area of black muck soil in the vicinity of Montreal is well suited for the production of market garden crops.

In eastern Quebec, the organic soils consist chiefly of raw undecomposed peat which is less suitable for agriculture.

The Maritime Provinces.—The uneven topography, the irregular coast line, the great variety of rocks and the moist, temperate climate of the Maritimes have all combined to form soils that are suitable for small farms with diversified crops. The soil in some areas is entirely unsuited to farming, while in others it is extremely fertile, and in general there are large areas where the soil can, with care, be used to produce excellent crops.

A vertical five-foot section through undisturbed forest soil shows four layers; a humus layer; a loose, sandy, grey layer poor in bases; a richer but harder layer; and then the original broken materials. The very fertile soils of the river intervals and of the extensive tidal marshes are of recent formation, but the older uplands are podsolic, that is, they are leached to such an extent that they are only fairly fertile.

This podsolic type of soil has developed over hundreds of years from the action of the high rainfall and temperate climate on the broken material of the original rock formation. It is a much different soil to that found in countries with a low rainfall. The breaking-up of new land and cultivation have of course mixed the original surface layers of soil and in some cases exposed them to such an extent that erosion has taken place. This is true of some of the slopes in the more rolling parts of the country, where cultivation has denuded the land of much of the surface soil and laid bare the original broken material. It is evident, too, that leaching of bases from the upper layers has caused acid soils.

There is considerable lack of uniformity in the soils throughout the Maritime Provinces. Thus in the relatively small area comprising the fruit belt of the Annapolis valley, there are 45 soil types varying from a heavy clay loam to coarse sand. In the uplands the soils vary from rich loam to light sandy loam suitable for forests or possibly rough pasture. This lack of uniformity in soils emphasizes the need of careful soil examination in crop planning.

Topography*

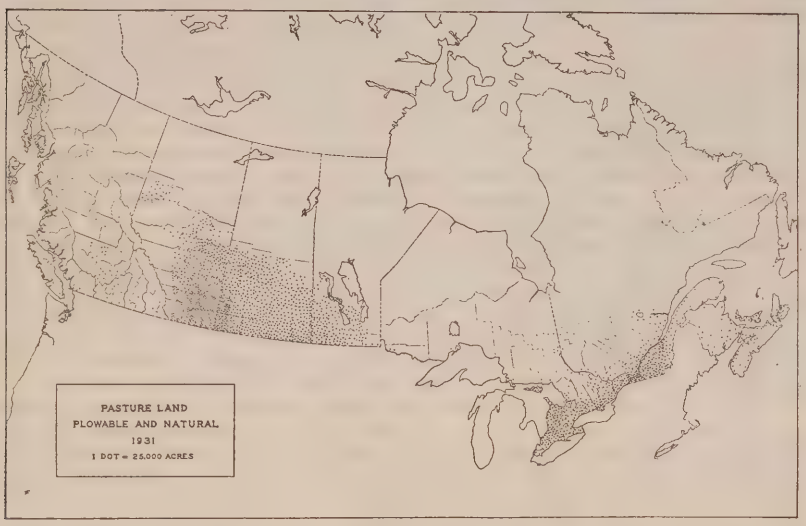
The topography of Canada is dominated by the mountain ranges running north and south near the west coast and the Precambian or Canadian Shield, stretching over a large part of Ontario and Quebec. The area between these two rocky regions is the northern extension of the North American plain. The northeastern part of this plain occupies southern Ontario, south of a line extending from Georgian bay to the east side of lake Ontario; that part of eastern Ontario lying between the Ottawa and St. Lawrence rivers, and part of Quebec lying adjacent to the St. Lawrence between Montreal and Quebec city and extending in a narrow belt down the river and including Anticosti island. This section is known as the St. Lawrence Lowlands. The part of the plain west of the Canadian Shield is of wide extent, stretching north of the Arctic and west from lake Winnipeg in Manitoba to the foothills of the Rocky mountains in Alberta.

The eastern part of the St. Lawrence Lowlands area in eastern Ontario and Quebec is comparatively flat and lies less than 500 feet above sea level. That part lying adjacent to lakes Ontario, Erie and Huron, is of less even surface, has its greatest elevation of over 1,700 feet south of Georgian bay and slopes

* Condensed from Canada Year Book 1929, article by Wyatt Malcolm, Page 16.

rather gently to the Great Lakes. A striking topographical feature is the Niagara escarpment. This is an eastward-facing escarpment having a height of 250 to 300 feet and extending from the Niagara peninsula northwest to the Bruce peninsula.

The Interior Plains region, comprising the Prairie Provinces, is a broad plain with a slope eastward and northward of a few feet per mile, descending from an elevation of from 3,000 to 3,500 feet near the mountains on the west to less than 1,000 feet on the eastern border. The elevation of the Canadian Pacific Railway at Calgary is 3,439 feet and at Winnipeg, 772 feet.



The Appalachian and Acadian regions occupy practically all that part of Canada lying southeast of the St. Lawrence, with the exception of the lowlands west of a line joining Quebec city and lake Champlain. The Appalachian region is a northern extension of the Appalachian system of mountains. This region is confined to eastern Quebec. The Acadian region, which includes the provinces of New Brunswick, Nova Scotia and Prince Edward Island is an alternation of highlands and lowlands. The northwest part of New Brunswick is an upland with hills and ridges rising 2,500 feet or higher; adjacent to the bay of Fundy is a series of ridges rising in places to an elevation of 1,200 feet or more. Between these two uplands is a lowland forming the whole eastern coast of New Brunswick and converging towards the southwest. This lowland extends east to include Prince Edward Island and part of Cape Breton island and the mainland of Nova Scotia north of the Cobequid mountains. South of these mountains lies a long narrow lowland stretching from Chedabucto bay to Minas basin and along the Cornwallis and Annapolis valleys between the North and South mountains.

The area occupied by British Columbia is known as the Cordilleran Region. The eastern part of this area is occupied by the Rocky mountains, consisting of a chain of peaks of from 10,000 to 12,000 feet in height extending from the United States boundary northwest to the Liard river in the north. The western part is occupied by the coast range and the mountains of Vancouver and Queen Charlotte islands. The Coast range rises to heights of from 7,000 to 9,000 feet. Between these two mountain ranges lies a vast plateau system, having an elevation of from 3,000 to 4,000 feet cut by deep river valleys.

Markets and Other Factors

It is not always necessarily true that soil, climate or topography will be the final factor in deciding the type of farming in any area. Another factor which may have considerable importance is that of available markets. This point is of particular importance in connection with perishable products, where transportation costs are high and deterioration more likely to take place. In recent years, the introduction of the truck as a means of rapid transportation has greatly widened the areas of production for city markets of such products as fluid milk and fresh vegetables. However, it is still true that a large proportion of truck garden produce is produced within a close range of the larger cities. Recent studies of the marketing of fruit and vegetables on the Toronto and Ottawa markets indicate that the major part of the vegetables, other than foreign imports, consumed in these cities is produced within a radius of 20 miles of the cities.

In Canada, the greater percentage of the urban buying power is centered in southern Ontario and in Quebec. The total urban population of the Dominion in 1931 was 5,572,058 people; of the toal, 2,095,992 were residents of Ontario and 1,813,606 of Quebec. The largest centre of urban population in Ontario was Greater Toronto, with a population of 808,864 and a large percentage of the balance in Ontario were living in the area between Hamilton and Windsor, Ottawa in eastern Ontario, with a population of 126,872 is the only large city in the province east of Toronto. In Quebec, over half of the urban population were living in Greater Montreal, which had a population of 1,100,159 in 1931. The main centres of population in Western Canada were Winnipeg in Manitoba and Vancouver in British Columbia. Other smaller cities in Western Canada and in the Maritimes also influence the type of farming practised in their immediate vicinity, according to their importance as consuming centres.

Other things being equal, there is a general tendency for a more intensive type of farming to develop in the areas relatively close to the ultimate markets, and the more extensive types of farming, such as grain growing and ranching, to take place in the more distant regions. This is not entirely a result of marketing facilities but is also influenced by the relative values of the land. While the value of land will be influenced by the type of farming carried on in any area, at the same time the basic factors of productivity and location will be the major factors in determining agricultural land values. Therefore, if land values are relatively high because of productivity and location, it will be necessary to utilize these lands in such a way that the returns per dollar of value will also be relatively high. The fact that high land values result from high productivity makes it necessary, for example, in the irrigated areas of Alberta, for individual producers to specialize in crops which yield a high return per acre.

The availability of processing plants may also influence the type of farming in any area. Such plants as cheese factories, creameries, concentrated milk plants or canning factories located in an area will encourage the production of products for these plants in the immediate vicinity. Of course, it is probable that these plants will be found chiefly in areas particularly adapted for the raising of the product to be processed. Another factor of a somewhat similar nature, is the presence or absence of co-operative organizations in a particular area. Such organizations often foster the production of certain commodities and may render the production and marketing of these commodities more economical than other enterprises.

The question of transportation as a factor in determining types of farming has been discussed along with the availability of markets, with emphasis being placed on the necessity of rapid transportation in connection with perishable products. The cost of transportation is also a factor which may influence areas of production. Certain bulky products cannot be shipped economically over long distances for the cost of transportation is too high in relation to their value.

This factor is of more importance in determining in a general way the possibility for surplus production of certain commodities in widely divided areas, such as Eastern or Western Canada, rather than the distribution of particular commodities within a relatively small area. For example, hay for Ontario urban markets will likely be produced in Ontario rather than in Western Canada.

The type of land tenure in any area may have some influence on the type of farming carried on. This is not a particularly important factor in Canada where the percentage of tenant-operated farms is relatively small compared with those operated by owners. Where the tenant is not restricted by the lease in the type of farming he must carry on, it is possible that tenant farmers would tend towards a type of farming with a high cash return and would not have the long-time outlook of the owner-operator.

On individual farms, the type of farming may be limited to some extent by the amount of capital available to carry on farm operations. Some types of agriculture require a relatively high capitalization and these types are limited to those who can finance them. Individuals, too, may organize their farm business according to their particular likes and dislikes, regardless of the most adaptable type of farming for the area.

Changes in the relative prices of the different agricultural commodities may have an effect on the type of farming in any area, particularly in the short-time organization on farms. This is shown in the cyclical fluctuations which take place in the production of certain commodities, chiefly live stock, in response to price changes. Any extended period of relatively high prices, such as the high price of wheat in wartime, will result in an expansion of acreage in those areas of marginal production. Similarly, low prices over a period of years will result in a contraction of acreage and consequent change in land use and type of farming.

Aside from the economic factors affecting agriculture, there are also the influence of technological and biological changes. From the technological standpoint, the introduction of a highly mechanized agriculture, especially in Western Canada, has had the effect of lowering costs of production of grain crops and has made possible a more extensive type of farming with a given labour supply. Biological changes, such as the introduction of new varieties of grains, which require a shorter growing season or are resistant to certain diseases, have made it possible to change the type of farming. This factor has been of particular importance in driving back the fringe of settlement in the more northerly districts of the Prairie Provinces.

TYPES OF FARMING BY PROVINCES

The major factors which tend to determine the type of farming in any given area have been discussed and it is now possible to see how the interaction of these forces has worked out in the various provinces of the Dominion. The methods used in determining the type-of-farming areas and the relative importance of the various enterprises in each area are discussed in the appendix. By way of introduction, and before preceding with a discussion of particular types-of-farming areas within each province, some reference will be made to the agricultural history and development of the individual provinces.

A map showing the types-of-farming areas throughout the Dominion will be found at the front of the bulletin and accompanying this section of the text are similar maps, but on a somewhat larger scale, of British Columbia, the Prairie Provinces, Ontario, Quebec and the Maritime Provinces.

British Columbia

The first census of agriculture in British Columbia was in 1881 when a total of 2,743 farms were reported. This province is so broken by mountain ranges that the agricultural areas are limited and in many cases isolated. The census of 1931 reported a total of 3,541,541 acres of occupied land in that year, of which only 704,956 acres were improved. The population in 1931 was more urban than rural, when only 43·1 per cent were in the latter classification. There were 26,079 farms reported in 1931 having an average total acreage of 135·8 acres per farm. Of this total, only an average of 27 acres was improved and 17·3 acres in field crops. The production of grain is of minor importance in most regions, the average acreage being only 2·5 acres of wheat and 3·3 acres of oats per farm. Cultivated hay averaged 7·4 acres per farm. Numbers of live stock per farm were also relatively small, except for poultry. Horses averaged 2·4 per farm, cows 9·2, sheep 5·6, hogs 2·1 and hens 191·6 per farm. The number of poultry per farm is the only one to show any definite tendency to increase over previous census reports.

While most of Vancouver island is mountainous, there are limited agricultural areas along the southeast coast of the island and near the city of Victoria. The farming of this area is fairly highly specialized in such enterprises as small-fruit production, vegetables, poultry and dairy production. The production of flower and vegetable seeds is also carried on in a limited way.

On the Mainland, there is a specialized agricultural area in the lower Fraser valley at the mouth of the Fraser river, near Vancouver. This area is specially noted for dairy and poultry production, although small fruits, market garden produce and potatoes are also produced. The Howe Sound area, including Richmond, is also a specialized producing area from the standpoint of agriculture. The principal products of the area are poultry and eggs, market garden truck and potatoes.

In the interior valleys of British Columbia, there are several areas where cattle and sheep ranching are carried on fairly extensively. The best known area of agricultural production in British Columbia is the Okanagan valley. This valley lies in the southern interior of the province, chiefly along Okanagan lake. Apple production is the major enterprise in this area, which is irrigated. In 1931, production of apples in British Columbia amounted to 4,608,569, bushels, chiefly from the Okanagan valley. Plums, pears, peaches and cherries are also produced in considerable volume in this region. There are other smaller valleys of less importance where fruit is produced in the southeastern sections of the province. In the northeastern sections of the province, settlement has been going forward in the Peace River District adjoining a similar area in Alberta. In 1931, there were 1,115 farms reported in the area. While still primarily pioneer in nature, the area is proving suitable for grain and live stock production.

TYPES OF FARMING AREAS IN BRITISH COLUMBIA

1. Queen Charlotte Is: dairy, poultry, potatoes.
2. Skeena River: pioneer, mixed.
3. Bella Coola: dairy, fruits.
4. Courtenay V. I: dairy, poultry, mixed.
5. Nanaimo V. I: dairy, poultry, mixed.
6. Duncan V. I: dairy, poultry, potatoes, fruits.
7. Saltspring Is: poultry, dairy, sheep, small fruits.
8. Saanich V. I: dairy, poultry, orchard, market garden, flower seeds, small fruits.
9. Lower Fraser Valley: dairy, poultry, potatoes, small fruits.
10. Howe Sound: poultry, dairy, potatoes.
11. Sechelt: poultry, dairy, potatoes.
12. Hazelton: mixed, cattle, poultry.
13. Smithers: mixed, cattle, poultry.
14. Burns Lake: mixed, cattle.
15. Fort Fraser: mixed, cattle.
16. Vanderhoof: pioneer.
17. Prince George: pioneer.
18. Chilcotin River North: range cattle.
19. Cariboo: range cattle, sheep.
20. Chilcotin South—Lillooet—Bridge: range cattle, sheep.
21. North Thompson River: cattle, sheep, poultry, potatoes.
22. Nicola—Kamloops: range cattle, sheep, market garden, orchard.
23. Salmon Arm: orchards, poultry, dairy.
24. Spillumcheen: cattle, wheat, orchards, market garden.
25. Okanagan Valley: orchard fruits, small fruits.
26. Kettle River: dairy, fruit.
27. Similkameen: fruit, cattle, sheep.
28. Columbia River N.: pioneer, cattle, hogs, fruit.
29. Nakusp, Burton, Needles: fruit.
30. Castlegar: cattle.
31. Kootenay: wheat.
32. Creston: fruit.
33. Kaslo: cattle.
34. Windermere: cattle, poultry.
35. Cranbrook: cattle, hogs, poultry.
36. Fernie: cattle, hogs, mixed.
37. McBride: pioneer.
38. Peace River, Fort St. John: wheat, feed grains, hogs.
39. Peace River, Pouce Coupé: wheat, feed grains, hogs.

Alberta

As in the other Prairie Provinces, agriculture in Alberta did not receive much encouragement until the completion of the transcontinental railway in 1885. The census of 1881 reported only 285 farms in the area. The number of farms has increased rapidly since that date and totalled 97,408 farms in 1931. The total population of the province at that date was 731,605 of which 61·9 per cent were rural.

The census reports 38,977,457 acres of occupied farm land in the province in 1931. Of this total, 17,748,518 acres were improved in 1931. The average size of farm in Alberta at that time was 400·1 acres, of which 182·2 acres were improved and 123·6 acres were devoted to field crops. The principal field crop was wheat, averaging 81·5 acres per farm for the whole province in 1931. The average acreage of oats was 25·3 acres and for barley 7·3 acres per farm. Numbers of live stock averaged 7·7 head of horses, 11·7 cattle, 8·1 sheep, 10·9 hogs and 89·6 poultry per farm in 1931. Average numbers of poultry and swine have been increasing, while numbers of horses and cattle per farm have declined since 1901.

Wheat is still the predominating farm product of Alberta and large areas of farm land are devoted almost exclusively to the production of this crop. The main area of wheat production in 1931 was in the south-central section of the province, area No. 58 on the map. Wheat is also grown extensively in most other areas of the province but more in combination with other enterprises. The more northerly areas of the province tend to include a larger proportion of coarse grains, oats and barley, in their cropping program, with the result that larger numbers of cattle and hogs are kept on farms to utilize the feeds. This type of farming is general throughout the Edmonton, Red Deer and Vermilion section of the province with hog production particularly important. Farther north and west is a fringe of pioneer settlement and in the extreme northwest, the Peace River development has taken place. Here wheat growing is predominant, although the cattle and hog enterprises have also been developed.

In the southern sections of Alberta, both cattle and sheep ranching are carried on extensively, with wheat growing in those areas where topography and climate permit. Cattle ranching is particularly important along the southwestern part of the province at the foothills of the Rocky mountains. In the central southern region, there are two fairly large irrigation developments. The Taber—Raymond area is specialized particularly in sugar-beet production along with alfalfa hay. The Brooks, Bassano and Vauxhall area is more devoted to general farming with some specialization in alfalfa. In the area around Macleod in southwestern Alberta, hogs, cattle and grain are the chief products.

Saskatchewan

Agriculture in Saskatchewan is more uniform than in the other two Prairie Provinces but live stock production is becoming more important in relation to wheat, especially in the eastern and northern sections. The agricultural development of Saskatchewan, like Alberta, was necessarily delayed until after the province had been crossed by railroads. In 1881, before the province was formed, a census of the area gave a population of 19,679 and only 704 farms were reported. Since that time, there has been a rapid development of the agricultural lands of the province and in 1931, there were 136,472 farms reported. In that year 68·4 per cent of the population was classified as rural. The area of occupied land in the province in 1931 amounted to 55,673,460 acres. The improved area was 33,548,988 acres.

The average size of farm in Saskatchewan was 408 acres in 1931. Of this total, 246 acres were improved and 162 acres were devoted to the production of field crops. Wheat acreage averaged 110 acres per farm for the province, with oat acreage at 31·5 acres and barley at 10·1 acres per farm. Numbers of live stock averaged in 1931: horses, 7·4; cattle, 8·8; sheep, 2·1; swine 7·0; and poultry 88 per farm. Numbers of swine and poultry have shown the greatest tendency to increase in recent years.

It will be seen from the foregoing data that the province is primarily a wheat growing area and the main agricultural section (No. 77 on the map) is largely devoted to this crop. This is the open plains area, which for the most part is devoid of trees. On the farms of this area, there is usually no more live stock than is necessary for the provision of farm power and live stock products for the farm home. A few farms close to the larger cities, such as Saskatoon, Regina and Moose Jaw, maintain dairy herds and cater to the nearby city markets. The southeastern section of the province is somewhat more diversified in its agriculture than the plains area, with coarse grains displacing some of the wheat and live stock a more important factor in the farm business. Dairying is of some importance in this region. Further north, along the eastern side of the province, general farming is carried on with a background of wheat production. The areas across the northern border of the province are somewhat similar from an agricultural standpoint to those along the eastern boundary. Coarse grains are grown more extensively than in the open plains and more live stock is kept on the farms. Hogs are becoming particularly important in this section of the province. A fringe of pioneer settlement along the northern edge of the agriculturally developed part of the province is still being opened up.

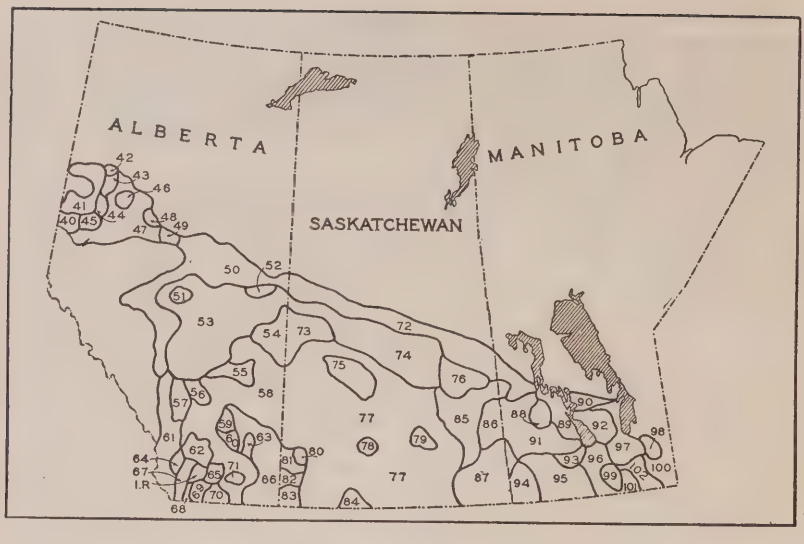
In the extreme southwestern part of Saskatchewan, where rainfall is comparatively low, a cattle and sheep ranching type of farming has been built up similar to that of the adjoining area of Alberta. Here, too, a considerable area is devoted to wheat production.

Manitoba

The development of a diversified type of farming in the Prairie Provinces has been carried forward to the greatest extent in Manitoba, undoubtedly because of climatic and other favourable conditions. Farming had its beginning in Manitoba at a much earlier period than in the more westerly provinces. The first agricultural settlement in this province began with the bringing in of settlers by Lord Selkirk in 1812. Settlement was along the Red river valley near St. Boniface. The early settlers had many difficulties and settlement was retarded. In 1831, there were 2,152 acres under cultivation in the area and development was slow from that time until 1856 when the acreage had been increased to 8,806 acres. From then on, however, development was much more rapid, although the rate of new settlement has declined in the last twenty years.

The area of occupied farm land in Manitoba in 1931 was 15,131,685 acres, of which 8,521,930 acres were improved. There has been a gradual increase in the number of farms in the province and in 1931, there were 54,199 farms reported. The population of Manitoba in 1881 was 83·5 per cent rural but by 1931, this percentage had been reduced to 54·9 per cent. Tenancy is higher in Manitoba than in the other two Prairie Provinces and in 1931, 18·2 per cent of the farms were being operated by tenants.

The average size of farm in Manitoba was 279·2 acres in 1931. Of this total, an average of 157·2 acres were improved. The average acreage of field crops was 108 acres. As in Alberta and Saskatchewan, wheat was the most important field crop, averaging 48·3 acres per farm, oats averaged 28 acres and



TYPES OF FARMING AREAS IN THE PRAIRIE PROVINCES

ALBERTA

40. Peace River, southwest: wheat, feed grains, cattle, hogs.
41. Peace River, northwest: pioneer.
42. Peace River, north: wheat, cattle, hogs.
43. Peace River, north-central: wheat, hogs.
44. Spirit River, Fairview: wheat.
45. Grand Prairie, Webster: wheat, hogs.
46. Peace River, Culp: wheat, feed grains, hogs.
47. Peace River, eastern: pioneer.
48. Peace River, Municipality 264: wheat, hogs.
49. Faust: cattle, hogs.
50. Northern and N. W. pioneer fringe: pioneer.
51. Edmonton: wheat, cattle, hogs, poultry.
52. St. Vincent: wheat, cattle, hogs.
53. Red Deer, Edmonton, Vermillion: wheat, cattle, hogs.
54. Wainwright: wheat, cattle.
55. Alliance: wheat, cattle.
56. Carbon, Norquay, Stauffer: wheat, hogs.
57. Calgary, Carstairs: wheat, cattle, hogs.
58. Sounding Creek, Neutral Hills, Lomond: wheat.
59. Bulyea: wheat, cattle, hogs.
60. Brooks-Vauxhall Irrigation area: wheat, hogs, poultry.
61. Southern foothills: range cattle.
62. Claresholm: wheat, hogs.
63. Sunnysouth, Kings: wheat, sheep.
64. Pincher Creek: wheat, cattle.
65. Taber-Raymond Irrigation area: wheat, sugar beets, alfalfa, hogs, poultry.
66. Medicine Hat, McNallly: wheat, cattle.
67. Macleod: wheat, cattle, sheep.
68. Cardston West: cattle, sheep.
69. Raymond South: wheat, cattle, hogs.
70. Warner south: wheat, cattle.
71. Skiff: wheat, sheep.

SASKATCHEWAN

72. Northern Pioneer Fringe: pioneer.
73. Spruce Lake: wheat, cattle.
74. Prince Albert, North Battleford: wheat, cattle, hogs, feed grains.
75. Saskatoon: wheat, cattle, hogs, feed grains.
76. Wadena: wheat, cattle, hogs, poultry, feed grains.
77. Central Plains area: wheat.
78. Chaplin area: wheat, rye.
79. Regina-Bethune: wheat, dairy.
80. Municipalities 140 and 170: wheat, cattle, sheep.
81. Maple Creek-Hatton: wheat, cattle.
82. Municipalities 80, 81, 82: range cattle.
83. Consul: wheat, cattle.
84. Municipalities 14, 15, 16: wheat, cattle.
85. Central Eastern Saskatchewan: wheat, dairy and beef cattle, poultry, hogs.
86. Qu'Appelle Valley North: wheat, dairy and beef cattle, poultry, hogs.
87. Southeastern Saskatchewan: wheat, cattle, hogs.

MANITOBA

88. Dauphin: wheat, cattle, poultry, feed grains.
89. Ste. Rose du Lac: beef cattle.
90. Inter-Lake North: pioneer.
91. Central Western Manitoba: wheat, cattle, feed grains.
92. Inter-Lake Central and Western: dairy.
93. Carberry Plains: wheat, cattle.
94. South West Manitoba: wheat, cattle, hogs.
95. Glenboro Plains: wheat, cattle, hogs.
96. Carman: wheat, cattle, hogs, poultry.
97. Winnipeg, Selkirk, Gimli: dairy, hogs, poultry, potatoes, barley.
98. Whitemouth: dairy, poultry, potatoes.
99. Red River West: wheat.
100. Southeastern Manitoba: pioneer.
101. Arnaud: wheat, dairy, hogs.
102. Marchand: dairy, poultry, hogs, potatoes .

barley 20·8 acres per farm in 1931. Cultivated hay is not grown extensively in any of the Prairie Provinces, although at 5·5 acres per farm, it was higher in Manitoba than in the other two provinces. Numbers of the various classes of live stock per farm averaged in 1931; horses, 6·2; cattle, 12·6; sheep, 4·0; swine, 7·3 and poultry 111·1 per farm. There has been a tendency for sheep, swine and poultry numbers per farm to increase since 1901, while numbers of horses and cattle have shown little change.

Considering the types of farming in Manitoba, it is noticeable that the areas of relatively similar types of farming are smaller than in Alberta and Saskatchewan. In the southeastern corner of the province, agriculture is just being developed and is still pioneer in type. These farms are generally of a diversified nature with some grain, cattle and hogs. In the area just south of Winnipeg, farmers were, in 1931, tending to specialize in dairy production, although some wheat is still being grown as a cash crop. North of Winnipeg, dairying is also the important farm enterprise. Here poultry products and potatoes are also being produced in substantial volume. The district around Shoal lake is a general farming area with dairy products, grain and hog production the main sources of farm income. The largest area of fairly homogeneous agriculture in Manitoba is known as the Glenboro Plains area, (No. 95 on the map); where wheat production predominates, there is a considerable acreage of feed grains grown to support the fairly substantial live stock enterprises on those farms. North and west of the Plains area are other areas of somewhat similar types of farming, the main point of difference being the lesser dependence on wheat. The Dauphin area near lake Winnipegosis is largely one of beef cattle production. Manitoba also has its pioneer fringe along the

northern boundary of agricultural development. Considerable development has taken place in the inter-lake region north of Winnipeg.

Crossing the wide area of non-agricultural land in northern Ontario, the more highly developed agricultural areas of southwestern Ontario are reached. Agricultural development in the eastern provinces began much earlier than in Western Canada and has generally speaking tended to be more diversified, although small areas of specialization on a particular commodity have been developed in more recent years.

Ontario

The first agricultural settlement in Ontario was in the Niagara peninsula in 1760. The development was continuous from that time forward and by 1852, there were just under 100,000 farms being operated in the province. In 1881, the census reported 206,989 farms. This was the peak, however, and by 1931, the number had declined to 192,174 farms. The shift from rural to urban population has been quite marked in the province of Ontario. The percentage of the total population living on farms was 78 per cent in 1871, while in 1931, it was 38·9 per cent.

The acreage of occupied farm land in Ontario in 1931 totalled 22,840,898 acres. The improved acreage was reported at 13,272,986 acres. The average total acreage per farm was 118·9 acres in that year, of which 69·1 acres were improved. There were 48·7 acres devoted to field crops. The leading grain crop was oats with 12·3 acres per farm. In this province, a considerable proportion of the feed grain is grown in mixtures, especially of oats and barley, and in 1931 the average acreage of these mixed grains was 5·3 acres per farm. Wheat acreage averaged 3·3 acres, barley 2·3 acres and cultivated hay averaged 19·3 acres per farm. Live stock and live stock products are much more important in the farm program in Ontario when the size of farm is considered, than in Western Canada. The average numbers of the various classes of live stock in 1931 were: horses, 3·1; cattle, 13·2; sheep, 5·4; swine, 7·2 and poultry 134·2 per farm. There has been little change in these averages since 1901, except in the case of poultry, which has increased sharply.

The southern part of Ontario, bordering the Great Lakes, has been developed agriculturally for many years, but the development of the more northerly areas is still going forward. Most of this new land is covered with forest and the process of clearing and breaking is slow. The most important areas where development is now taking place are located in Rainy River, near Fort William and near Sudbury and Cochrane. These areas are classed as pioneer farming with a fairly wide variety of enterprises being practised to cater to the nearby city and mining markets. More completely established farming areas have been built up in the Sault Ste. Marie and New Liskeard areas, where the production of live stock and live stock products, coarse grains, hay and potatoes is taking place.

Shifting southward from the more recently settled areas to the farming areas of the southern part of Ontario, it is necessary to discuss the smaller type-of-farming areas in considerable detail to emphasize the various products being produced in each area. One of the more highly specialized areas of production is the Essex and Kent area at the extreme southwest of the province (No. 118 and 119 on the map). This area has a long growing season in comparison with the rest of Canada and consequently a number of crops can be grown there which would often fail to reach maturity in other sections of the country. It is for this reason that the area is particularly noted as a grain-corn producing area. However, this is not the only important cash crop produced in the area. Essex and Kent counties comprised the original tobacco producing district of the province. Ontario sugar beet production is also centered in this general area.

Market gardening is practised on a large number of farms in this area. Poultry production, potatoes, onions and wheat are other important enterprises in this highly productive region. North and east of Essex and Kent are the counties of Lambton, Middlesex and Elgin. While some of the special crops grown in Essex and Kent are also produced in these three counties, the agriculture of this area is more dependent on the live stock enterprises. The main cash crops are canning crops, field beans and some sugar beets. The cattle are generally of the dual-purpose type with considerable attention being given to beef production. To the north of Lambton county and bordering lake Huron

TYPES OF FARMING IN ONTARIO

103. Rainy River: pioneer, cattle, sheep.
104. Fort William–Port Arthur: pioneer, dairy, poultry, potatoes.
105. Cochrane: pioneer, cattle.
106. New Liskeard: pioneer, cattle, poultry, sheep, potatoes.
107. Sault Ste. Marie: dairy, poultry, potatoes.
108. Sudbury: dairy, poultry, potatoes, pioneer.
109. Manitoulin Island: beef cattle, sheep.
110. Bruce Peninsula: beef cattle, sheep.
111. Northern Bruce and Grey: beef cattle, sheep, hogs.
112. Dufferin–Simcoe: beef cattle, hogs, orchard, potatoes, sheep, wheat.
113. Lake Huron counties: beef and dairy cattle, poultry, hogs.
114. Waterloo: poultry, hogs, turnips, potatoes.
115. Northern Parts Halton, Peel, York: dairy, potatoes, hogs, poultry, clover seed.
116. Niagara Peninsula: orchards, vegetables.
117. Oxford: dairy, poultry.
118. Essex: market garden, tobacco, corn, wheat, sugar beets, poultry, hogs.
119. Kent: sugar beets, corn, tobacco, wheat, poultry, hogs.
120. Elgin, Norfolk, Haldimand: canning crops, tobacco, orchard, dairy, hogs.
121. Hamilton, Toronto, Kingston Lake Shore: orchard, dairy, vegetables, poultry.
122. Peterboro: dairy and beef cattle, sheep.
123. Durham, Northumberland North, Hastings: dairy, poultry, hogs, sheep.
124. Prince Edward: canning crops, orchard, dairy.
125. Renfrew–Lanark: dairy and beef, sheep.
126. Eastern Ontario: dairy, hogs, poultry.
127. Ottawa: dairy, market gardens, potatoes, poultry.

are the counties of Huron and Bruce. The topography of these counties is somewhat more rolling than in the southern areas and a large acreage of rough pasture is available. This has tended to develop beef cattle production in this area, along with sheep raising. Here, hogs are also of considerable importance. Hay and coarse grains are the principal cultivated crops grown, mostly for feeding to the live stock. In the northern part of Bruce and in Grey county, the chief products are beef cattle, sheep and hogs. There is, however, an apple producing district in Grey county, near Owen Sound, Meaford and Clarksburg, in the Beaver valley. The more central counties of southwestern Ontario, Perth, Waterloo and Wellington (No. 114 on the map) have not become particularly specialized in any one type of production. Both beef and dairy cattle are raised in the area and hogs are raised in relatively large numbers per farm. Grain is grown chiefly for farm use although there is often a surplus for cash sale. The production of table turnips is of particular importance, especially in Wellington county.

Dairying is common to almost all areas of southwestern Ontario, but one county stands out as the most important fluid milk producing area in the province. This is the county of Oxford. While other classes of live stock are also raised in this area, especially poultry, it is sufficiently specialized to be considered as a strictly dairy area. The county of Norfolk, situated south of Oxford county, and bordering lake Erie, has undergone a somewhat rapid shift in type of farming over the past fifteen years. From a rather general type of live stock and grain farming, it has been developed into a highly specialized cash crop area. The soil of the area is particularly adapted to the production of flue-cured tobacco for cigarette manufacture. Canning crops, such as tomatoes and sweet corn, are also grown extensively in this area and considerable specialization in apple production has taken place.

Farming in Brant, Haldimand and Welland counties is more diversified in nature on the individual farms with dairying, hogs and poultry as the most important enterprises. Crops are grown chiefly for feed although clover seed is harvested for sale on a substantial number of farms. The Niagara peninsula centered around Lincoln county and lying between lake Ontario and the Niagara escarpment is widely known for the production of fruit, principally peaches and grapes. The area has a mild winter and a long growing season and is particularly adapted to the production of fruits.

The counties of Halton, Peel and York, bordering on the northwestern edge of lake Ontario, have been divided into northern and southern divisions from a type-of-farming standpoint. Farms in the southern part of these counties, bordering the lake, have become highly specialized in the production of market garden truck, small fruits and apples, chiefly for the Toronto and Hamilton markets. In the northerly sections, farther from the lake, farming is more general in nature, with dairying, hog and poultry raising and some potato and clover seed production. The county of Peel is especially noted for alfalfa seed production. Further north, the area comprising Dufferin and Simcoe counties, bordering Georgian bay and lake Simcoe, has a diversified type of farming, being chiefly a live stock and cereal crop combination. There are, however, relatively small specialized areas of potato and apple production, the former around the town of Alliston and the latter in the Collingwood district.

The area north of lake Simcoe comprising Muskoka and Nipissing counties is of rugged topography and a considerable part of the area is unsuitable for agriculture. In those areas where farming is carried on, beef cattle predominate. The Victoria–Peterborough and North Hastings area is also somewhat rugged, although there are some areas of excellent farm land. Beef cattle production is important in this area, but there is a specialized dairy section in the vicinity of Lindsay and Peterborough. Hogs, poultry, potatoes and clover seed are also important sources of farm income in this region. Further south, but not adjoining lake Ontario is an area (No. 123 on the map) of general diversified farming.

There is a turnip producing district located in this section of Ontario county. The lake shore sections of these counties are more specialized in the production of tree fruits and market garden produce. Prince Edward county is almost completely surrounded by water and consequently has a climate which tends to favour fruit production. Canning crops are also grown extensively in this county. The counties of Renfrew, Lanark and the west part of Carleton are general live stock counties with beef and dairy cattle, hogs, sheep and poultry. Some farmers grow a small surplus of grain for sale as seed.

The main counties of eastern Ontario, between the St. Lawrence and Ottawa rivers, are particularly well-known for the cheese produced in the area. There is an abundance of rough pasture in most parts of the area and dairy cattle are kept for summer production for the cheese factories. Most farmers, however, also keep some hogs and poultry to fit into the farm business. There is in Carleton county, near Ottawa, a relatively small area where market gardens, dairy products, poultry and potatoes are produced along with other crops.

Quebec

Agriculture in the province of Quebec commenced in 1608 when twenty-eight settlers spent the winter at Quebec. For many years, agricultural development was slow because of the numerous difficulties encountered by settlers and in 1667 the population of the area was 3,918 with an acreage under cultivation of only 9,674 acres.

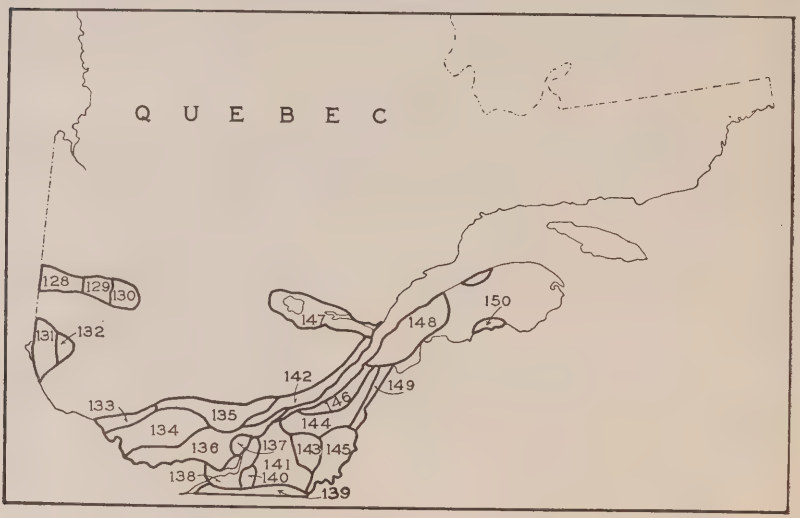
It was not until after the middle of the eighteenth century that settlement began to take place at an appreciable rate, and by 1844 there were 114,496 farms reported in the area now included in this province. In 1931 there were 135,957 farms reported in the province representing some decline from the number reported in 1911. Rural population in Quebec was 36·9 per cent of the total in 1931 compared with 77·2 per cent in 1871. The area of occupied farm land in 1931 was reported at 17,304,164 acres of which a total of 8,994,158 acres were improved. The area of occupied land has shown a gradual increase since the first census records were secured.

The average size of farm in Quebec in 1931 was 127 acres, of which 66·1 acres were improved. The area devoted to field crops averaged 44·7 acres per farm. There has been a gradual tendency for the acreage of field crops per farm to increase in Quebec but there has been some shift in the relative importance of the different crops. The acreage of wheat grown in the province was approximately 240,000 acres in 1870, but this had declined to under 40,000 acres by 1931. The predominant field crop is oats, averaging 12·2 acres per farm and was the only cereal crop which averaged over one acre per farm in 1931. Acreage of cultivated hay averaged 27·7 acres per farm in that year being the most important form of land use and the acreage of potatoes averaged 1·08 acres per farm.

Numbers of the various classes of live stock per farm averaged as follows: horses, 2·4; cattle, 12·8; sheep, 5·4; swine, 5·5; and poultry 69·0 per farm. These figures represent a gradual increase since 1844 in the numbers of cattle, swine and poultry per farm. Numbers of horses per farm reached a peak of 2·8 in 1921 and numbers of sheep a high point of 8·5 per farm in 1871.

The most recent area of settlement in Quebec is in the Abitibi area in the northwestern part of the province along the Canadian National Railway. This area is now in the development stage and may be classified as a pioneer area. The farming being carried on by the settlers tends towards live stock and coarse grain production. Another area, somewhat south of Abitibi in Timiskaming, near Ville Marie, has developed into a live stock producing area with dairy cattle, sheep and hogs. Further settlement is being carried on along the eastern border of this area.

An extensive area, north of the Ottawa river and extending north and east of the St. Lawrence river to lake St. John, has a somewhat similar type of farming throughout, although there have been several divisions made in mapping the general area. Farming here is largely a combination of crop and live stock enterprises with little tendency toward specialization. The sale of live stock and live stock products is the main source of revenue. Some smaller divisions within the general area have become somewhat specialized in particular classes of live stock, also in the small area (No. 127 on the map) located at the southern end of L'Assomption, Joliette and Berthier counties near the St. Lawrence river, a fairly extensive tobacco producing area has been developed. The poultry enterprise is also being emphasized in this area, particularly in Joliette county.



TYPES OF FARMING IN QUEBEC

128. Abitibi West: pioneer.
129. Amos area: dairy, hogs, pioneer.
130. Senneterre: pioneer.
131. Ville Marie: dairy, hogs, sheep.
132. Latulipe: pioneer.
133. Pontiac North: pioneer.
134. Pontiac, Hull, Papineau, Labelle: dairy, sheep.
135. Central Quebec Pioneer Fringe: pioneer.
136. North Shore Ottawa River, Western Shore Upper St. Lawrence River: dairy, hogs, poultry, potatoes.
137. L'Assomption: dairy, hogs, tobacco.
138. Montreal: dairy, market garden, poultry, potatoes, hogs.
139. Huntingdon-United States Boundary: dairy, orchards.
140. Rouville-St. Jean-Iberville: orchards, market garden, dairy, poultry.
141. Central Eastern Townships: dairy, poultry, potatoes, hogs.
142. North-Western Shore St. Lawrence River: dairy, sheep, potatoes.
143. Wolfe, Arthabaska: dairy, sheep, poultry, potatoes.
144. Central Lower St. Lawrence Counties: dairy, sheep, potatoes.
145. Frontenac, Beauce: dairy, sheep.
146. Central South Shore St. Lawrence River: dairy, poultry, hogs, potatoes.
147. Lake St. John: dairy, sheep, hogs, potatoes, pioneer.
148. Lower St. Lawrence, South Shore: dairy, sheep, hogs, potatoes.
149. Temiscouata East: dairy, sheep, potatoes.
150. Bonaventure East: dairy, sheep, potatoes, poultry, pioneer.

In the vicinity of Montreal, that is, Montreal and Jesus islands and the western border of Laprairie and Chambly counties, a highly specialized area of small fruit, vegetable, potato and egg production has been developed. This area is particularly suitable for the production of these crops as well as being closely associated with the large consuming market of Montreal city. Adjoining this area on the east is the Rouville–St. Jean–Iberville district which, while an important producing area for market vegetables, poultry and dairy products, is also the location of a substantial apple orchard area. Apple orchards are also found in Napierville county. The Huntingdon–Stanstead area, No. 139, bordering the United States is a specialized dairying area with orchards again of some importance, especially in Chateauguay. Further east in the area known as the Eastern Townships, dairying is the principal type of farming, but such products as hogs, poultry, coarse grains and hay are also important.

The most easterly part of southern Quebec tends more towards beef cattle production but the farms are general in character with a fairly wide variety of products. Maple products are important in this section of Quebec. The area south and east of the St. Lawrence, stretching up to the Gaspe peninsula is a general mixed farming area. In the more southerly counties, dairy, hogs and sheep are important enterprises. Further north and towards the New Brunswick border, dairy cattle and sheep remain important but potatoes are raised in greater abundance in this section. In the lake St. John area, north and west of the St. Lawrence, sheep, hogs and dairying are the important farm enterprises along with potato production. In this area, substantial quantities of blueberries are picked for shipment to other districts. There is still considerable expansion taking place in this region.

New Brunswick

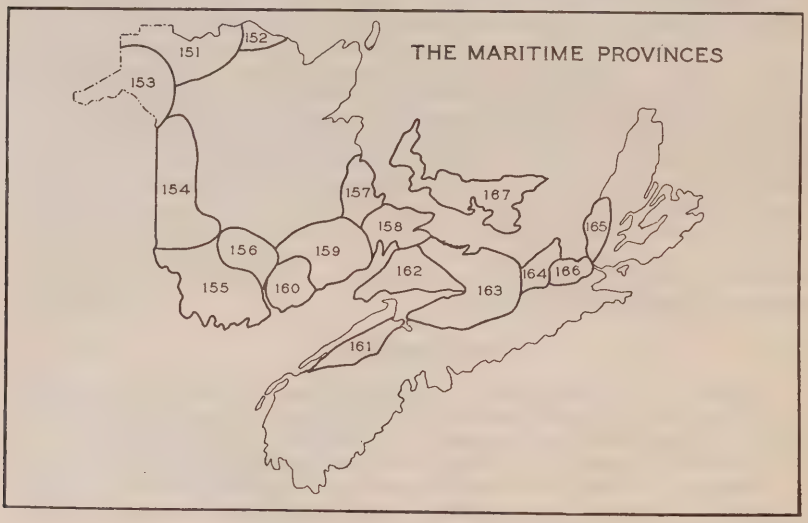
Because of its proximity to the sea, agriculture in New Brunswick began at an early date, but development was slow in the early years. By 1840, however, there were 435,861 acres reported to be under cultivation. In the early years, substantial quantities of winter wheat were produced in this province and the reputation of New Brunswick potatoes was established at an early date. Potato production continues to be of major importance but wheat growing largely disappeared after the development of Western Canada.

The census of 1931 reports 4,151,596 acres of occupied farm land in the province, of which, 1,330,232 acres were improved. The average size of farm in New Brunswick was 122 acres in 1931 but a large proportion of the land still remains in woodland and there was only an average of 39 improved acres per farm. The acreage of field crops per farm averaged 28 acres. The important crops grown were hay with an average of 17·4 acres per farm, oats 6·4 acres, potatoes 1·8 acres and buckwheat 1·25 acres per farm. The average numbers of live stock per farm were 1·6 head of horses, 6·4 cattle, 4·2 sheep, 2·6 swine and 43·8 head of poultry. While the numbers of poultry were still low relative to other provinces, this has been the only class of live stock to show any particular tendency to increase in recent years. Numbers of cattle, sheep and swine were higher per farm in 1861 than they were in 1931.

Farming is carried on in almost all sections of New Brunswick but the degree of intensity and type of farming in the various districts differs substantially. In the northwestern part of the province, chiefly in Madawaska county, general live stock and field crop farming is carried on with potatoes as an important cash crop on many farms. The upper St. John valley (No. 154 on the map) is a highly specialized potato producing area. The potato crop is depended on for the major part of the farm income, although most farms in the area also maintain moderate numbers of live stock and grow sufficient feed crops for their maintenance.

The Woodstock–Fredericton area, bordering the St. John river between these two cities, is a general live stock farming area with the main enterprise being dairy, hogs, feed grains and potatoes. The St. Stephen area, in the southwest of the province, is quite similar to the area just described as far as type of farming is concerned. The large area of central and northeastern New Brunswick is not essentially an agricultural region. A large part of the area is under forest and while there are a few farms in the area, close to the main roads, these farms are for the most part small and the farm operators find it necessary to have some outside employment to supplement their incomes.

The area between St. John and Sussex in the southeast is a general live stock farming area with most of the emphasis being placed on the dairy enter-



TYPES OF FARMING AREAS IN THE MARITIME PROVINCES

NEW BRUNSWICK

151. Restigouche West: pioneer.
152. Restigouche North East: dairy, potatoes, pioneer.
153. Madawaska. dairy, sheep, potatoes.
154. Carleton, Victoria: potatoes, dairy.
155. South West N.B.: dairy, potatoes, pioneer.
156. Fredericton: dairy, potatoes, poultry, orchard.
157. Northumberland: dairy. potatoes, sheep, part-time.
158. Moncton: dairy, potatoes, sheep.
159. Kings, Albert: dairy, part-time.
160. St. John: dairy, potatoes, poultry.

NOVA SCOTIA

161. Annapolis Valley: orchards.
162. Cumberland: dairy, potatoes, sheep.
163. Truro: dairy.
164. Pictou: dairy.
165. Inverness: dairy, potatoes, sheep, hogs.
166. Antigonish: dairy, poultry, part-time.

PRINCE EDWARD ISLAND

167. Kings, Prince, Queens: dairy, potatoes, hogs, poultry, sheep.

prise; some potatoes are also produced in this area. The Moncton area has a similar type of farming but with somewhat more attention being given to hog production. There is a small apple producing area in the lower St. John valley, principally in the township of Gagetown.

Nova Scotia

Settlement of Nova Scotia for agricultural purposes was started early in the seventeenth century. The development was slow during those early years but it is interesting to learn from an early record that apple trees had been planted in Nova Scotia as early as 1633, for this crop has become one of the most important agricultural products of the province. The peak of agricultural development in Nova Scotia appears to have been reached somewhere around 1891 and since that time, there has been a gradual decline in the total acreages of grains and numbers of live stock. The number of occupied farms and rural population has also been declining since that time. Rural population was 85·6 per cent of the total in 1881 but by 1931, this percentage had been reduced to 54·8.

The acreage of occupied land in Nova Scotia in 1931 was 4,302,031 acres, of which 844,632 acres were improved. The average total acreage per farm was 109 acres but of this total only an average of 21·4 acres were improved. The average acreage of field crops was 14·6 acres in 1931, of which 10·7 acres were devoted to cultivated hay. From these figures, it can be seen that the production of field crops is not of major importance in this province. It must be remembered, however, that these figures are the averages for the whole province and there are some areas where the acreage would be much higher. For the province as a whole, the numbers of live stock per farm are also comparatively low. There were in 1931 an average of 1·2 horses, 5·9 cattle, 5·0 sheep, 1·2 swine and 37·4 poultry per farm. There has been very little change in these averages since 1901 except for some increase in the number of poultry per farm.

The most important type of farming which has developed in Nova Scotia is not included in the foregoing figures, that is, apple production. The production of apples is confined chiefly to an area known as the Annapolis valley (No. 161 on the map). From this area nearly 5 million bushels of apples were harvested in 1930. The area included in the Annapolis valley includes parts of the counties of Annapolis, Kings and Hants. Live stock, poultry and potatoes also contribute to the income from these farms. The area including Hants, Colchester, Pictou and Antigonish counties (No. 163) is a mixed farming area with some specialization in dairy production. Hogs, sheep, potatoes and roots are also found in this area. Cumberland county is a general mixed farming area producing live stock, coarse grains and potatoes. Much of the remainder of Nova Scotia is unsuitable for agricultural production. Some farming, however, mostly of a part-time nature, is carried on along the east coast of the province and on Cape Breton island. Dairying is the most important source of farm income from these farms. There were 566 fur farms reported in Nova Scotia in 1930, the number of this type of farm has been increasing.

Prince Edward Island

Prince Edward Island is the smallest province of Canada but has become quite important agriculturally, chiefly because a very high proportion of its total area is suitable for agricultural production. Prince Edward Island is reported by the census as having 1,258,190 acres of possible farm land and in 1931, 1,191,202 acres or 94·7 per cent of this land was occupied. The improved acreage in 1931 was 765,772 acres, only slightly lower than Nova Scotia. Ninety-four per cent of the farms were operated by the owner in 1931.

Farms of Prince Edward Island averaged 93 acres in total area in 1931, and of this total, 59·5 acres were improved and 38·4 acres per farm were devoted to field crops. The only important acreages of individual crops were 11·6 acres of oats per farm, 18·3 acres of hay and an average of 4·2 acres of potatoes per farm. Live stock numbers average slightly higher per farm in Prince Edward Island than in Nova Scotia, being 2·4 for horses, 7·9 cattle, 6·1 sheep, 3·2 swine and 74·2 poultry. There has been little variation in these averages since 1901, except that numbers of sheep tend to decline and numbers of poultry to increase. Prince Edward Island has a reputation of a fox farming area and this type of farming remains an important factor in the farm program.

The type of farming in this province is quite similar in all districts, with a variety of enterprises. There is however, a tendency to specialize in potatoes and turnips as cash crops with fur-farming as the live stock speciality.

AREAS OF PRODUCTION OF THE PRINCIPAL AGRICULTURAL PRODUCTS

The various types of farming and the areas in which they are to be found have been indicated in the preceding pages, and the conditions—climate, topography, soil, marketing facilities, kind of product, which tend to make one area more suitable for a particular type of farming than another area, have been discussed. The present section deals with the individual products, summarizes the areas in which they are produced and developes more fully, the relative importance of these commodities. To assist the reader in obtaining a clearer picture, the type-of-farming areas of the principal farm enterprises are also shown on the maps which accompany the text.

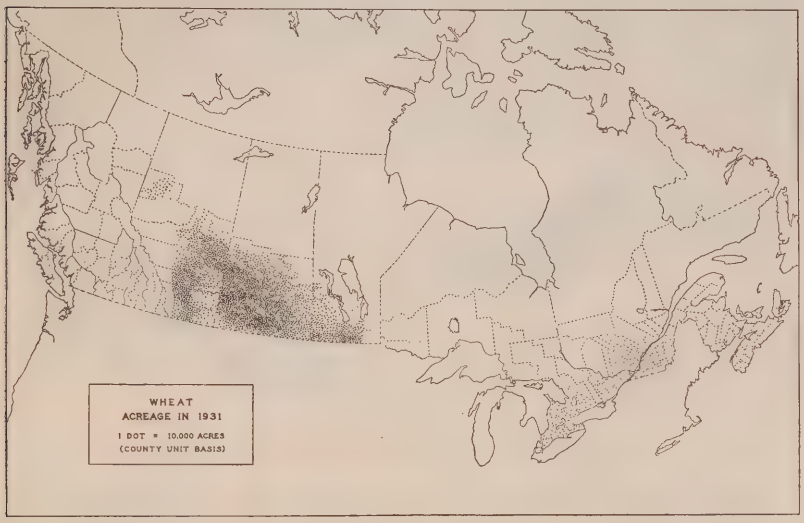
Field Crops

Wheat.—To-day wheat stands out as the most important cereal crop grown in Canada. Although this statement hardly seems necessary now, it is a condition which has not always existed. Not until the census of 1911 did the acreage devoted to wheat exceed that seeded to oats. The change which took place in the first decade of this century was occasioned by the rapid opening up for settlement and development of the Prairie Provinces of Western Canada. In 1900, the total wheat acreage in Canada was 4·2 million acres compared with 5·3 million acres of oats grown in that year. By 1930, the acreage of wheat had increased to almost 25·6 million acres, while oat acreage had increased to 11·6 million acres. The acreage seeded to wheat in 1931 was 45·5 per cent of the total field crop acreage in the Dominion.

In the early stages of Canada's development as an agricultural country, wheat was grown principally in the province of Ontario. This wheat was seeded partly in the fall and partly in the spring. However, after the spring wheat areas of the prairies came under the plough and because of disease and insect damage, the wheat acreage in Ontario has declined steadily and is now confined almost entirely to the fall wheat types. In Western Canada, spring wheat is grown almost exclusively. While durum wheat is seeded extensively in Manitoba, the hard red wheat, typified by Marquis, is by far the most popular type in Western Canada. The acreage of wheat in Canada has shown a continuous increase since the first general census in 1881, but the rate of increase has been slower in recent years. The greatest expansion took place between 1911 and 1921, no doubt influenced by the demand for Canadian wheat arising from the Great War.

The dot map on page 27 shows how wheat acreage in Canada has become concentrated in the three Prairie Provinces. The provinces of Nova Scotia,

Prince Edward Island, New Brunswick and Quebec have ceased to grow wheat to any extent. The acreage of wheat in Ontario has declined from 1,949,135 acres in 1880 to 632,320 acres in 1930. Already there has been a decline shown in wheat acreage in Manitoba. Farmers in this province seeded 2,759,445 acres to wheat in 1920, but in 1930, the acreage was reduced to 2,150,371 acres. Alberta and Saskatchewan have shown a continuous expansion of wheat acreage by census years, but the rate of increase has been much slower in recent years.



The most northerly area devoted to agriculture in Canada is the Peace River area of Alberta and British Columbia. This area is now an important wheat producing district, but coarse grains are also important. The main wheat producing area of Canada to-day extends from central Manitoba westward through Saskatchewan and almost to the foothills of the Rocky mountains in Alberta. This area suffered severely from drought during the period from 1930 to 1937, but remains of great importance as a wheat growing area. The only area in Eastern Canada where wheat is grown extensively as a cash crop is located in southwestern Ontario, principally in Kent and Lambton counties.

Oats.—The second most important cereal crop in Canada from the standpoint of acreage is oats. Because the oat crop is grown largely for feeding to live stock, it does not enter into commercial channels to anything like the same extent as wheat. Oats have always been the most popular feed grain crop grown in Canada. Since the first general census of 1881, there has been a continual expansion in the acreage devoted to this cereal. In 1900, the acreage of oats represented 27·2 per cent of the total area of field crops. Despite the rapid increase in wheat acreage, oats still represented 22·2 per cent of the total acreage devoted to field crops in 1930.

As in the case of wheat, the principal oat growing areas in Canada have gradually shifted to the western provinces since the turn of the century. Ontario led all provinces in acreage seeded to oats until the census of 1921, at which time the acreage in Saskatchewan exceeded that of Ontario and remained higher at the time of the 1931 census. The three Prairie Provinces, which produced less than 2 million bushels of oats in 1880, harvested over 174 million bushels in 1930.

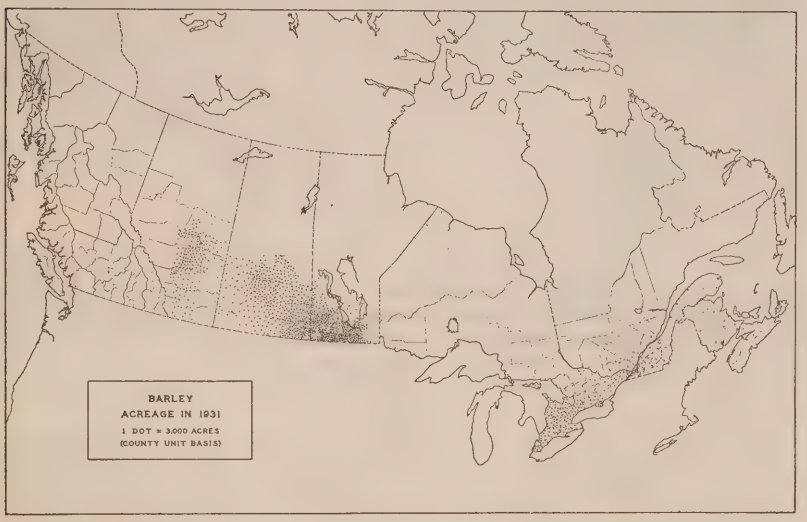
The acreage devoted to oats has shown a continual increase since 1900 in all provinces, except Prince Edward Island and Nova Scotia, where a slight decline occurred between 1920 and 1930. Since the oat crop is used almost entirely for live stock feeding purposes, it would seem unlikely that the shift in areas of production will ever reach the same proportions as in the case of wheat.

The dot map indicating the acreage seeded to oats in 1931 shows a fairly uniform distribution of acreage in the Prairie Provinces, Ontario, Quebec and Prince Edward Island. In the other provinces, the production of oats is of lesser importance. An area of more definite concentration of oat acreage in Quebec is noticeable in the counties south of the St. Lawrence river near Montreal. While some oats are produced on almost all farms in Western Canada, there is a shading of the concentration from the south to the north of the provinces. That part of the country which is producing surplus oats as a cash crop, is generally speaking farther north than the areas where wheat is the predominating crop. There is a rather wide variation in the varieties of oats sown in Canada, due chiefly to the differences in length of growing season, soil and climate in the different producing areas.

Barley.—Barley plays an important part in the Canadian live stock feeding program, especially in the hog ration where it replaces corn used in many other countries. In acreage it ranks second to oats among the feed grains. Barley has been gaining in relative importance in recent years, especially in Western Canada. There was an increase of from 2·0 million acres to 4·9 million acres in barley acreage during the decade from 1920 to 1930.

The production of barley has never been important in the Maritime Provinces. In 1880, Ontario and Quebec produced 95 per cent of the barley grown in Canada but in 1930, although production in these provinces remained practically the same, the percentage was only 15 per cent of the total Canadian crop. The acreage devoted to this crop in the Prairie Provinces has been increasing continuously since the opening up of that part of the Dominion and in 1930 reached a peak for census years of 4·3 million acres of these three provinces. British Columbia has never been an important barley producing province.

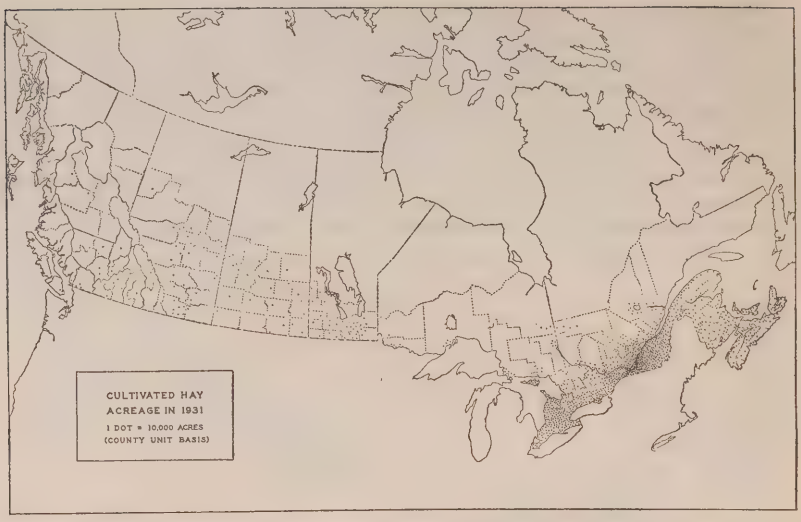
While barley is produced principally as a feed for live stock, there is also a substantial market for good quality barley for malting purposes. There are no readily defined areas specializing in the production of malting barley, the source of supply usually shifting from year to year according to the weather conditions during the harvest season. Barley for malting must be harvested under almost ideal conditions to ensure the quality demanded by the malting trade. The area of most concentrated barley production in Canada in 1931 was centered in the southern section of Manitoba as illustrated in the accompanying dot map. The acreage in the northwestern section of the agricultural area of Alberta has been expanding rapidly with the increase in hog numbers in that area.



Hay.—Live stock production and the use of horse power on farms necessitates a fairly large acreage of hay for feed purposes. The acreage of cultivated hay in Canada has been increasing steadily with each succeeding census since 1881. This increase has been shown in every province except Nova Scotia, in which province a peak for census years was reached in 1900. The total acreage for Canada in 1930 was 9·6 million acres. This figure does not, however, represent the total acreage cut for hay in Canada in that year as there are also large acreages of natural or wild hay harvested, especially in the Prairie Provinces. In these provinces, there is also a large acreage of grain crops cut green for hay.

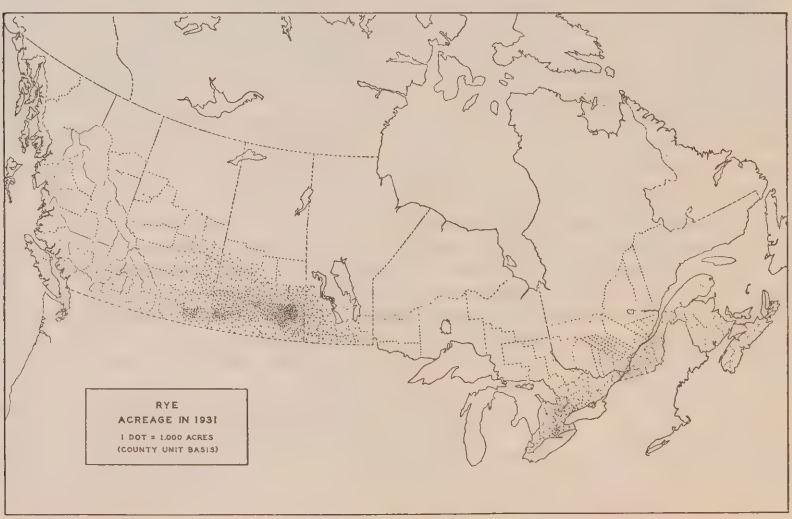
The most popular type of cultivated hay cut in Canada is a mixture of timothy and clover. In 1930, out of a total acreage cut of 9·6 million acres, 6·7 million acres were of this type. Timothy was the most popular of the individual hay crops with 1·7 million acres in 1930. Alfalfa has been increasing in popularity and importance, reaching 548,723 acres in 1930. The production of hay in Eastern Canada was fairly well scattered over the agricultural areas of these provinces. There is a slightly higher concentration in the area south and east of Montreal.

The cutting of clover and grasses for seed is fairly widespread in the provinces of Ontario and Quebec. The amount threshed depends to a large extent on weather conditions at time of harvesting and on prices offered for the seed. Certain counties have made more of a specialty of seed production than others. In Ontario, the counties of Simcoe, Peel, York and Ontario are most important

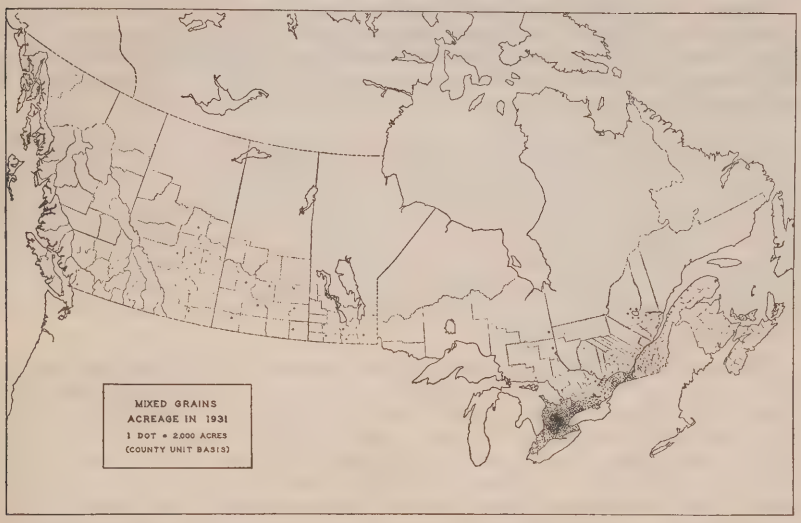


for clover seed while grass seed production is highest in the counties of Haldimand, Oxford and Norfolk in southwestern Ontario. Clover seed production in Quebec is concentrated chiefly in the counties of Soulanges and Vaudreuil, while Bagot, Rouville and Nicolet are important for grass seed production. The production of clover and grass seeds in the Prairie Provinces has been increasing, especially that of sweet clover and alfalfa.

Rye.—While not nearly so important in volume as wheat, oats and barley, rye is an important crop in some sections of Saskatchewan. The total acreage devoted to this crop was 1·1 million acres in 1930. Acreage has shown a continual increase by census periods. This increase was especially marked in the



period 1920 to 1930, chiefly in the province of Saskatchewan. Rye is not grown to any extent in the Maritime Provinces or Quebec. The acreage in Ontario has declined to a point where the crop is no longer important. In Saskatchewan, where a large proportion of the rye is grown, the acreage is most concentrated in the southwestern section of the province.



Mixed Grain.—The practice of growing two or more grains together for live stock feed is followed by many farmers, especially in the province of Ontario. Oats and barley form the most popular mixture, although peas are also frequently grown with oats. There was, in 1930, a total acreage of 1·1 million acres of mixed grains reported of which 86·9 per cent was located in the province of Ontario. Since these mixed grains are fed chiefly to hogs, there is a close relationship in Ontario between the major hog producing areas and the frequency of mixed grain acreage. This is especially true in Waterloo, Wellington, Perth and Oxford counties. Grains have never been grown in mixture to any extent in Western Canada.

Corn.—Corn is a crop which requires a long growing season and consequently is not grown for seed extensively in Canada, except in a relatively small area in southwestern Ontario. The acreage of corn for husking has been declining and in 1930 the total acreage was 91,379 acres compared with 360,758 acres grown in 1900. This acreage is largely in the counties of Essex and Kent in Ontario. Corn is grown for fodder to some extent in all provinces of the Dominion, but the largest proportion of the crop is grown in Ontario and Quebec. In 1930 there were 334,208 acres devoted to corn for fodder, of which 267,323 acres were reported from Ontario. Corn fodder is used chefly as ensilage in those areas specializing in dairy production.

Flax.—The flaxseed produced in Canada is grown almost entirely in the Prairie Provinces. The most concentrated area of production in 1930 was found in the vicinity of Wartime and Glidden in central-western Saskatchewan, north of the South Saskatchewan river. The acreage devoted to this crop is subject to wide fluctuations. In 1920 there were 1,164,752 acres of flax grown while in 1930 there was only 662,129 acres harvested. Flaxseed is used chiefly in the extraction of oil and the manufacture of oil cake.

Buckwheat.—Buckwheat acreage has not changed a great deal in the past forty years. In 1930 there were 351,030 acres grown in Canada of which 215,180 acres were in Ontario, chiefly in the eastern counties. Quebec reported 92,675 acres and New Brunswick 35,777 acres in 1930. Buckwheat is used mainly for poultry feed but a portion is milled for flour.

Beans.—Field beans are an important cash crop in certain counties of Ontario, where climatic conditions are favourable for their production. The acreage devoted to this crop has been increasing and in 1930 totalled 90,045 acres. Of this total, 90·9 per cent of the acreage was in Ontario. The counties chiefly responsible for this acreage were Kent, Elgin, Huron and Middlesex.

Peas.—Field peas were at one time an important feed crop in Ontario, but acreage has declined materially since 1900. This decline does not mean that peas have necessarily been dropped entirely from the feed rations, as most of the peas grown for feed in 1930 were grown in mixtures with other grains. Peas are also grown to be sold green for canning purposes in the provinces of Ontario, Quebec and British Columbia. There were 73,500 acres of peas reported for Canada in 1930 compared with 670,320 acres in 1900. Over eighty per cent of the 1930 crop was grown in Ontario, the principal counties of production being Renfrew, Simcoe and Durham.

Turnips.—Turnips are grown in Eastern Canada for live stock feed and for table use. The proportion of the crop which goes to either use is difficult to estimate as it depends almost entirely on the quality of the crop and the price offered for table turnips. There was a total of 104,898 acres sown to turnips in 1930, over 50 per cent of which were grown in Ontario, the principal turnip producing counties being Dufferin, Wellington and Simcoe. Quebec and Prince Edward Island are the only other provinces where turnips are an important crop. The Prince Edward Island growers produce chiefly for the export market for table turnips.

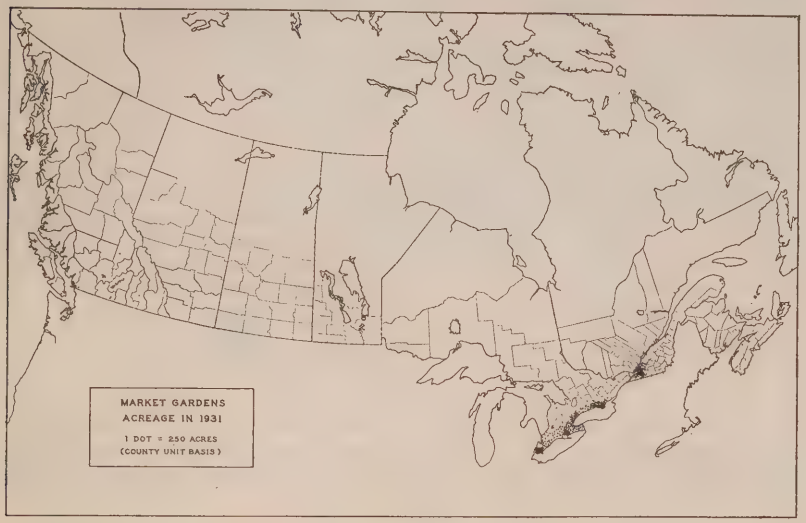
Sugar Beets.—The production of sugar beets for sugar manufacture is confined to relatively small areas in the provinces of Ontario and Alberta. There were 32,153 acres of sugar beets grown in Ontario in 1930, chiefly in Essex, Kent and Lambton counties. In Alberta the sugar beet industry has developed in the Taber-Raymond irrigation area in the south central part of the province.

Tobacco.—The acreage of tobacco in Canada has been continually increasing and reached a total of 48,352 acres in 1930. All but 144 acres of this was grown in Ontario and Quebec. The tobacco grown in Quebec is chiefly of the dark or Burley type, while in Ontario, the lighter cigarette tobacco is grown as well as the Burley type. Tobacco requires special soil and climatic conditions and is, therefore, confined to relatively small districts. In Quebec, the southern parts of Montcalm, Joliette, L'Assomption and Berthier counties comprise the most important area of tobacco production. The main producing areas in Ontario are Norfolk and Essex counties, with lesser acreages being grown in Kent, Elgin and Oxford counties.

Vegetables

While small family vegetable gardens are common to most Canadian farms, the commercial production of these crops is more or less concentrated in those areas close to large cities. The provinces of Ontario and Quebec stand out in the production of vegetables, although British Columbia is also an important producing area. The total acreage reported in vegetables in 1930 was 104,458 acres. Sweet corn is the leading individual crop in this classification with 30,331 acres in 1930. Tomatoes are also important with 26,146 acres. Other vegetables are peas. cabbage and onions. In Ontario, the lake shore area from Toronto to

Hamilton, Norfolk, Essex and Prince Edward counties were the most important market garden areas. In Quebec, most of the commercial market gardens are located in the area surrounding Montreal.

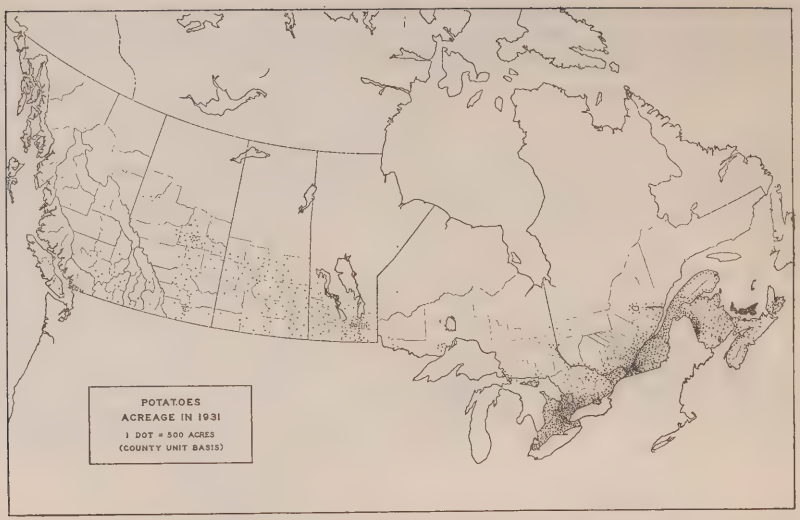


There were 21·5 million square feet of land in Canada under glass in 1930 and of this total, 11·4 million square feet were in Ontario. The greenhouse business has also reached important proportions in Quebec and British Columbia. Nurseries, totalling 6,101 acres in 1930, are also found chiefly in these three provinces.

Potatoes

Potatoes, being a staple product in the diet of Canadian farm families, are grown at least in small quantities on almost all Canadian farms. Because of this and the fact that a very large proportion of the crop is used domestically, little change in the acreage of potatoes in the Dominion occurs from year to year. There has been, however, a slight upward trend in acreage since the first census was taken in 1880. There has been some shift in the areas of commercial production, in that the increase in acreage has been most marked in the Prairie Provinces, British Columbia and Prince Edward Island. On the other hand, there has been a decline in the acreage devoted to potatoes in Nova Scotia from 60,192 acres reported in 1880 to 22,069 acres in 1930.

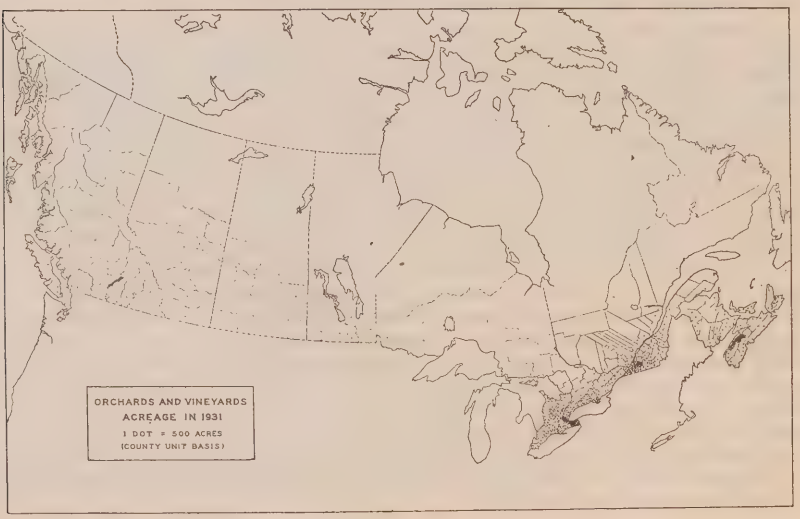
The potato crop is one which lends itself particularly to suitable conditions of soil and climate. Therefore, while there is generally a small acreage on each farm, it will be noted from the accompanying dot map that certain areas have become specialized in potato production. The province of Prince Edward Island is noted for the production of potatoes and specializes in the export of this product both for seed and table purposes. The upper Saint John valley of New Brunswick is another area well adapted for and developed as a potato producing area. In Quebec, there is a concentration of potato production in the Montreal area surrounding that city. In Ontario, potato production is more highly specialized in parts of Simcoe, Wellington, Dufferin and Middlesex counties and also in the area close to the city of Toronto. Just north of Winnipeg in Manitoba, is an



area of specialized potato production. The Delta area of the lower Fraser valley and the Ashcroft area in the Nicola district of British Columbia have also proved to be good potato growing areas.

Orchards

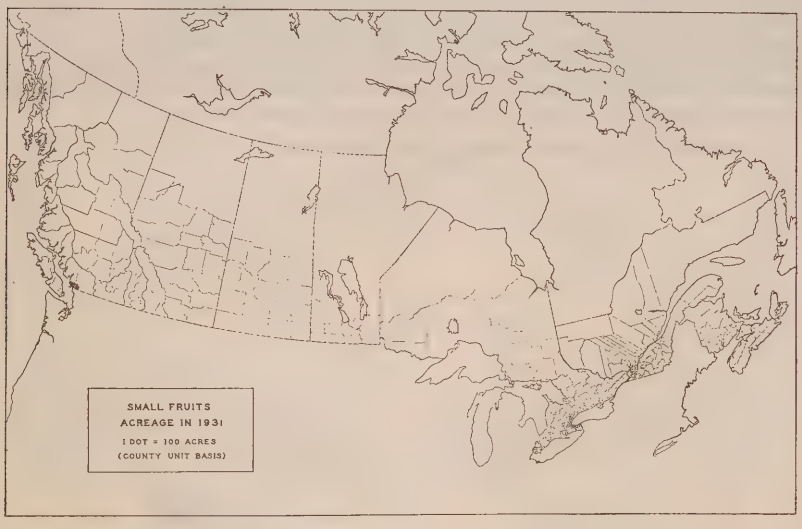
The susceptibility of fruit trees to damage from frost in winter limits the distribution of orcharding to the more southerly districts and in most cases to areas close to large bodies of water. In the older sections of Ontario and Quebec, small non-commercial orchards are common to most farms, but as in the case of potatoes, the areas of intensive production are relatively few in number.



Apple production, as shown by census enumeration reached a peak of 18·6 million bushels in 1900, and there has been a relatively constant production since that time. In 1930, production was reported at 15·5 million bushels. The major portion of this production is concentrated in the three provinces of Nova Scotia, Ontario and British Columbia.

Nova Scotia in 1930 harvested a crop of nearly 5 million bushels of apples. The area of production in this province is largely confined to the Annapolis valley. This valley lies along the east coast of the bay of Fundy, but within the shelter of North mountain.

In Ontario, the main fruit belt is located in the Niagara peninsula bordering lake Ontario. However, the chief areas of apple production are those counties bordering lake Ontario from Toronto east to Belleville, Prince Edward county, Norfolk county and the Beaver valley on the southern border of the Georgian bay. Apple production in British Columbia is largely confined to the Okanagan valley in the southern interior of the province. There is also an important apple producing area in the Eastern Townships of Quebec centering around the counties of Rouville, Iberville, Napierville and Chambly.



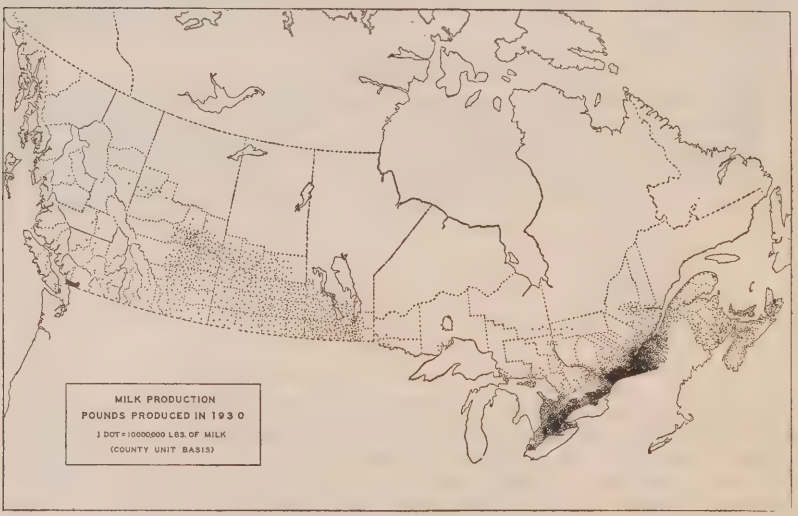
Peach production in Canada exceeded one million bushels in 1920, as compared with 43,637 bushels reported in 1890. The main province of production is Ontario and the crop is largely confined to Lincoln county in the Niagara peninsula, with lesser acreages in Wentworth, Essex, Welland and Norfolk counties. The only other province where peach growing is important is British Columbia where 94,690 bushels were harvested in 1930. Other fruits such as plums, pears and cherries are grown in essentially the same areas as peaches, being largely confined to the two provinces of Ontario and British Columbia.

Live Stock

Horses.—While there has been a considerable mechanization of farm power in Western Canada, the great majority of farmers in the Dominion still depend on horses for their farm power. Horse raising is generally confined to individual farm operators maintaining their own horses, but there are some actual horse

ranches, chiefly in the foothills area of Alberta. These ranch horses are generally shipped to Eastern Canada for farm or city use and a small number are exported. The market for horses in urban centres has been declining but the demand has not entirely ceased. The Canadian horse population reached a census peak of 3·6 million head in 1921 and declined to 3,285,431 head in 1931. The large proportion of the horse population is found in the three Prairie Provinces. Saskatchewan is the leading province with 997,426 head in 1930, Alberta reported 731,739 head and Manitoba 324,659 head. In 1901, 45·7 per cent of all the horses in Canada were in Ontario but this percentage was reduced to 18·6 per cent in 1931.

Cattle.—Cattle are raised to some extent on practically all farms in Canada, although the type and number kept may vary considerably in different areas. It is somewhat difficult to determine from census data those farm areas which concentrate on beef production and those which are particularly dairy areas. In many cases, especially in Western Canada, where dual-purpose cattle are kept, there is a considerable overlapping of the two types. Those farmers catering to the fluid milk and cheese milk markets usually keep cows of the dairy types only. The total cattle population of Canada was reported in 1931 at 8·1 million head, a slight decline from the census peak of 8·5 million head in 1921. The provincial distribution showed 2·5 million head in Ontario, 1·7 million in Quebec, 1·2 million in Saskatchewan and 1·1 million head in Alberta. The Maritime Provinces, Manitoba and British Columbia reported lesser numbers in proportion to the smaller number of farms in these provinces.

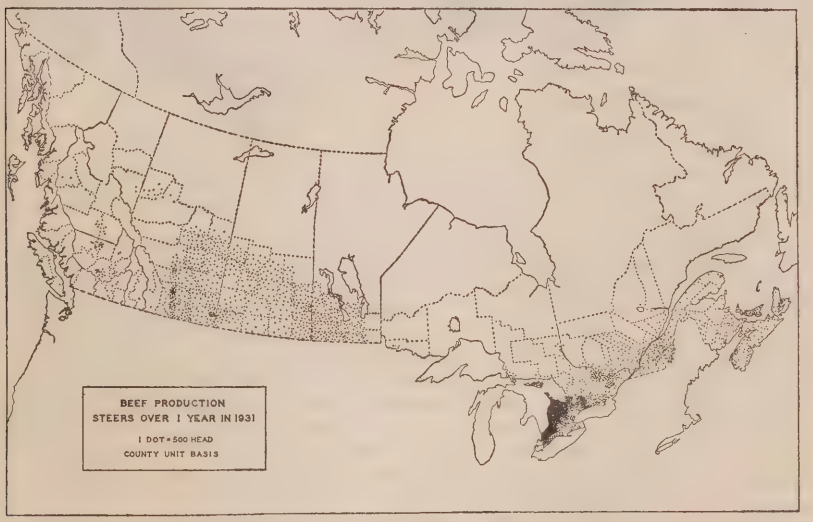


Fluid milk production as a major farm enterprise is usually found on farms within relatively close proximity to the larger urban centres. This factor is becoming less important as the methods of transportation are being improved and speeded up, but the general statement is still true. The most concentrated areas of milk production are found in Ontario, Quebec and British Columbia. Small areas of intensive dairy farming are found near any of the major cities either in Eastern or Western Canada. In Quebec, there is an important dairy area in the Eastern Townships lying south and east of Montreal. Those counties lying north of the St. Lawrence river in Ontario from Kingston

to the Quebec boundary are well known for the production of cheese. Milk used for cheese manufacture is generally produced during the summer months and the abundance of rough pasture in this area lends itself to dairying of this type. In western Ontario, dairying is carried on generally throughout the area but is especially concentrated in the counties of Oxford, Peel and York. In these counties the dairy herds are kept mainly for fluid milk production, in other counties of western Ontario, farmers more frequently sell cream or butter. The dairying of British Columbia is concentrated in a relatively small area in the lower Fraser valley near Vancouver. Production in this area is chiefly fluid milk for the Vancouver trade.

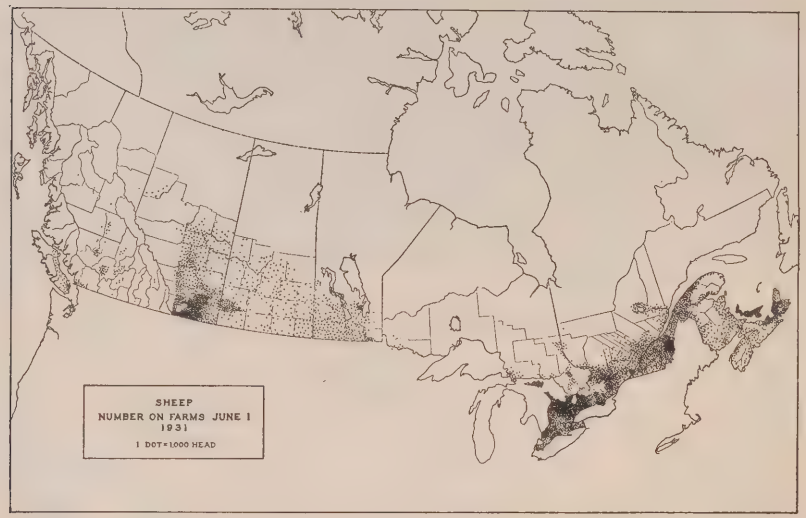
Beef cattle producing areas, as distinguished from the dairy areas, are generally located more remotely from the large urban centres. The Maritime Provinces are not noted for beef production and in fact all three provinces are deficit areas for beef products. The principal beef cattle area in Quebec lies south of the St. Lawrence river, but further north and east than the dairy area. The beef district centres around the counties of Beauce and Dorchester.

The beef cattle producing area in Ontario lies north of the dairy areas, in those counties bordering lake Huron and Georgian bay. This part of Ontario is inclined to be somewhat rugged in topography and suitable for grazing purposes. The counties of Lambton, Huron, Bruce, Grey and the northern part of Middlesex are well known as beef cattle areas. In the central and eastern part of southern Ontario, the counties of Peterboro, Lanark and Renfrew tend to specialize in beef cattle.



Cattle for beef are important in all three Prairie Provinces, the producing areas being chiefly in the more northerly sections of the agricultural part of the provinces, except in Alberta. An important cattle ranching area is located in southern Alberta and extends into the southwestern portion of Saskatchewan. Methods of handling beef cattle differ substantially between Eastern and Western Canada. In the eastern provinces, the cattle are generally winter fed in large barns while in Western Canada, conditions are more of a range nature. In the interior valleys of British Columbia, cattle ranching is also carried on to a considerable extent.

Sheep.—Sheep raising in Canada is carried on in two different ways. In most provinces of the Dominion, farmers keep a small flock of sheep as a cash producing side line; for this type of sheep raising, the mutton breeds are used almost exclusively. In Western Canada, some sheep ranching is carried on in special areas. Here the wool producing breeds predominate. The total number of sheep on farms has not changed materially in the fifty years 1881 to 1931, although there has been an increase from 3·0 million head in 1881 to 3·6 million head in 1931. Ontario was the leading province from the standpoint of numbers of sheep with just over one million head. Alberta was next with 785,929 head and Quebec reported 733,684 sheep in 1931.

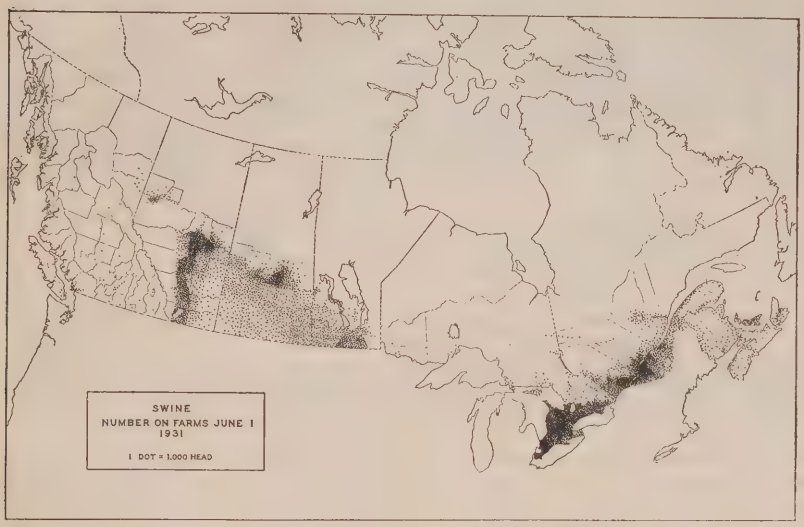


Although sheep are not raised in large numbers in Nova Scotia, there is some concentration of sheep raising in the northwestern counties of Inverness and Antigonish. Sheep are also raised in Prince Edward Island in substantial numbers considering the size of the province. The most intensive area of sheep production in Quebec is in the counties of Beauce and Kamouraska, but sheep are also common all along the Gaspe peninsula and in the lake St. John area. Pontiac county in western Quebec also has a relatively high sheep population per farm. Sheep raising in Ontario is most intensive in those counties bordering Georgian bay although it is practised in almost all counties of the province. Sheep are common on farms in Manitoba, Saskatchewan and Alberta, but only in the ranch areas of Saskatchewan and Alberta are the flocks large in size. These range sheep generally have at least some fine-wool breeding of the Merino type. In addition to cattle ranching, there are some sheep ranches in the interior valleys of British Columbia.

Swine.—Hog production in Canada was developed to satisfy the domestic market, but in more recent years, pork products have become an important agricultural export from the Dominion. There has been a gradual shift into the bacon type of hog in Canada and now almost the entire production is of this type. The total hog population has shown a continual increase since the first general census and in 1931 numbered 4·8 million head compared with 1·2 million head in 1881. The distribution of hogs on farms is fairly even over the country, but the provinces of Ontario, Alberta, Saskatchewan and Quebec stand out as

the chief hog producing provinces. Ontario has held the lead in hog production during the entire period from 1881, but is now being closely approached by Alberta.

Hog production is not of major importance on Maritime farms, nor is it in British Columbia although often the hog enterprise is part of a general farm program.

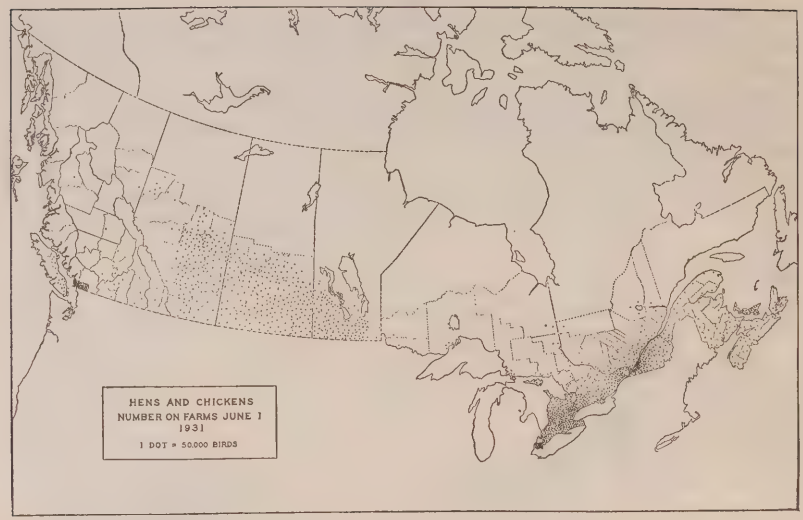


In Quebec, the raising of hogs is fairly general over the agricultural areas of the province but has become more concentrated in the counties just south of the St. Lawrence river, such as Nicolet, Yamaska, Bagot, Rouville, Napierville and Laprairie. The situation in Ontario is quite similar to that in Quebec. Hog population is somewhat more concentrated in the cheese producing counties of eastern Ontario and in the counties of Essex, Kent, Lambton, Perth, Waterloo and Oxford in western Ontario.

The areas of concentrated hog production in Western Canada follow closely the areas where coarse grains (oats and barley) predominate over wheat, that is, the more northerly areas. In Alberta, however, the areas where hog production is heavy extends across the north and then swings southward down the western side of the province.

Poultry.—Hens are kept on almost all Canadian farms in numbers at least sufficient to supply the farm home with eggs. The average farm flock is relatively small and is often given very little attention. However, there are also some highly specialized large scale poultry farms in various sections of the Dominion. The total poultry population in Canada was recorded at 70·8 million birds in 1931. When this is compared with 14·1 million birds in 1891, the rapid expansion of this farm enterprise is evident. The expansion is common to all provinces.

The more intensive areas of poultry production are found near the large urban centres. There is a noticeable concentration of poultry in the counties close to Montreal and Quebec cities in Quebec. Poultry raising is on a commercial basis



in almost all counties of southwestern Ontario, especially near the large industrial centres. One of the most highly specialized poultry areas in Canada is found in the lower Fraser valley of British Columbia, near the city of Vancouver.

Fur Farming.—The keeping of fur bearing animals on farms in Canada, either as the major enterprise or as a side line, has developed rapidly in recent years. Prince Edward Island was the first province to become noted for the production of fox furs, but the enterprise has spread to other provinces and in 1931 Quebec reported 2,043 fur farms, Ontario 1,218, New Brunswick 753 and Prince Edward Island 648 farms. Fur farms were reported in all other provinces in somewhat lesser numbers. While the fox is the predominating animal raised for fur, muskrats and mink are also reared.

Beekeeping.—Beekeeping is generally carried on as a side line on general farms, although there are a number of large apiaries in the country. There were 279,453 hives of bees reported in Canada in 1931. Ontario was the leading province in honey production, reporting 116,871 hives of bees in that year. The practice of keeping bees has been increasing in the Prairie Provinces and has now reached relatively large proportions.

APPENDIX

Methods of Procedure

The basic material necessary for a type-of-farming study covering all provinces of Canada is available only from the reports of the decennial census. The most recent census of the whole nation was completed in 1931. The census of 1936 pertains only to the Prairie Provinces. The census material available provides details of crop acreage and live stock numbers on the basis of townships or parishes in Eastern Canada and municipalities in Western Canada. While more complete information is published on the basis of larger census divisions, these divisions are too large to define the areas of farming types with any degree of accuracy.

The first requirement is to find some measure by which the relative importance of the different farm enterprises can be appraised. Several different measures have been devised and used and while each method has its peculiar advantage, they also have certain disadvantages. The measure of percentage of farm income from various sources has been used with a good deal of success in a number of studies and has recently been used in Canada by the Census Branch of the Dominion Bureau of Statistics in a study of types of farming in the Prairie Provinces, based on the 1936 census returns. The 1936 census, however, provided more details on the sources of farm income than did previous census reports. In the study made by the Census Branch, the type of farming on each individual farm was determined and the type-of-farming areas built up by calculating the percentage of farms of each type within any given area. As pointed out by the authors, the main weakness of this approach is the variability of income from year to year as a result of crop conditions and price changes, rather than any basic change in farm organization.

The productive-man-work-unit has been used in this study as the common denominator for crops and live stock. The data were, therefore, analysed on the basis of the proportion of the available labour which was devoted to the various farm enterprises. Thus, if the farm operators were devoting the major portion of their own labour and that of those working with them to the production of certain commodities, it would seem justifiable to consider such enterprises as the most important ones in the area under consideration. To carry out this method of analysis, it was first necessary to establish a work standard which would represent as closely as possible the number of productive-man-work-units necessary to care for one unit of the various classes of live stock or one acre of the various field crops. This standard was of necessity adjusted to allow for differences of size of farm, soil, climate, topography and technological developments in the various provinces of the Dominion. The work standards so established are recognized as being only approximate and it is also appreciated that within even the smallest census divisions, there will always be differences in the labour efficiency of individual farm operators.

This method of analysis to determine types-of-farming areas was first developed and used by Professor I. G. Davis in Connecticut. While it is admitted that the method has limitations, Professor Davis makes the following statement concerning its validity:—

"In testing the validity of this classification, an attempt was made to establish the relationship between these representative labour inputs and the extent of the gross receipts from each source. If conditions are normal, that is, if they represent long-time conditions for the average farmer, labour inputs

would theoretically be representative of net income provided the conditions of labour and technology among several enterprises are fairly similar."[1]

In using the productive-man-work-unit as a basis of determining type-of-farming areas, two basic assumptions have been made. Firstly, it has been assumed that the work standards are adaptable to large regions. These regions are undoubtedly too large and it is hoped that more detailed information on labour requirements in the different sections of the Dominion will become available for future studies. Secondly, it has been assumed that the type of farming within each small census division is relatively homogeneous. That is, that the average of the area is representative of the typical farm.

Having accepted the productive-man-work-unit basis of analysis, the first problem was to calculate the percentage of time spent on the individual enterprises for each small census division. The next step was to determine the type of farming from the percentage as calculated. Where one enterprise predominated in the area, there was no difficulty in determining the type of farming. However, in many areas, no one class of live stock nor kind of field crop stood out above the others, and in these cases, closer examination was necessary. Where live stock was an important enterprise and where feed was produced on the farm, it was necessary to add the time spent on producing the feed grains and fodder to the time actually spent on caring for the live stock. It might well be true, then that although the time actually spent in caring for a class of live stock was not a major percentage of the total time spent on the farm, the inclusion of the time spent in producing feeds for such live stock would bring that class of live stock up to an important place in the farm organization. A further check on this factor was the number of the various classes of live stock per farm. For example, when the hog population was such that an average of ten or more hogs were being kept per farm, it seemed reasonable to assume that hog production was being carried on in a commercial way, and was making at least some contribution to the farm income. This was also true in the case of sheep. This class of live stock does not require a large amount of labour per animal, but when farm flocks averaged over 15 head, the enterprise was assuming an important place in the farm business, especially in the Eastern Provinces. When an area is mapped by types of farming, it seemed advisable to show not only the predominant type in specialized areas, but also to enumerate the enterprises which make up the farm business in mixed or general farming areas. A mixed-farming area in Ontario might have a very different set of enterprises from a mixed-farming area in Alberta.

While the available data were not sufficiently complete to permit an accurate determination of size of business, measured in labour inputs, a good indication was provided. Data on outside labour and certain special enterprises were not available. The analysis of average work-units per farm, however, did separate out those areas in which the farms were not operating to capacity, or if they were, provided only a relatively small number of days' work for the operator and his family. Areas with a low average of productive-man-work-units per farm (under 100 days) were therefore classified as pioneer, part-time or self-sufficing, depending on the location of the area and other known facts concerning the area. The types-of-farming areas as defined by the foregoing analysis have not been classified as crop farms, live stock farms, and so forth, but rather the principal products produced in each area have been listed.

Definitions

Productive-man-work-unit.—This is the average amount of man labour required to take care of an acre of the various kinds of crops or one unit of the

*"Research in Farm Management, Social Science Research Council, Bulletin 13, page 41.

different classes of live stock. For example, if it takes an average of 20 hours of man labour to produce an acre of oats, then each acre of oats would represent two productive-man-work-units based on a ten-hour day. If it takes an average of 150 hours to care for a grade cow, then each cow is counted as 15 productive-man-work-units.

The following basic standard was used for the calculation of productive-man-work-units. This standard was used for Ontario and adjusted to meet as nearly as possible the conditions in other provinces:—

Labour Standard

Item	Productive-man-work-units	Item	Productive-man-work-units
	Per acre		Per acre
Wheat	2·0	Orchards and vineyards	12·0
Barley	2·0	Market gardens	20·0
Oats	2·0		
Rye	2·0		Per animal
Mixed grain	2·0	Cows	15·0
Other grain	2·0	Other cattle	2·0
Cultivated hay	1·0	Sheep	0·5
Potatoes	10·0	Swine	3·0
Roots	15·0	Hens and chickens	0·3
Other crops	2·0	Other poultry	1·0

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